

Innovation Beneath the Surface

EXCELLENCE IN AUTOMOTIVE REFINISHING OEM & Plastic Coating Solutions



“Engineered Chemistry, Reliable Performance”



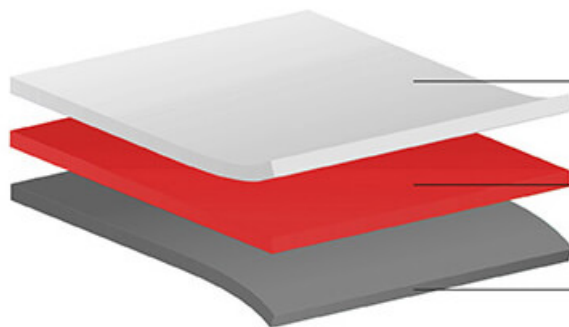


Energy efficient and highly productive car refinish products

Multi-layered modern car refinish paint system

A modern car refinish paint system consists of primer–filler/basecoat/clearcoat, offering waterborne or solvent borne technology. The biggest challenge for car refinish paint producers is to reduce drying time of fillers and clearcoats. Fillers must dry quickly to enable the process of sanding instantly after application and overcoating with the basecoat afterwards. Clearcoat must be ready to polish immediately after a short time drying and cooling down.

LAYERS OF A REFINISH PAINT SYSTEM



CLEARCOAT

50–60 μm – transparent protection, gloss

BASECOAT

15–25 μm – colour, metallic effect

FILLER

60–180 μm – surface, stone chip resistance

Specialty Resins & Additives for Automotive Coatings

High-Performance Solutions for Every Coating Layer

Our comprehensive portfolio of specialty resins and additives is engineered to meet the demanding requirements of the automotive coatings industry. Designed for outstanding appearance, durability, and long-term weather resistance, our products deliver reliable performance for both OEM and refinish applications.

Product Portfolio

- Bio-based Alkyd Resins
- Acrylic Solventbased & Emulsion Resins
- Alkyd Emulsions
- Polyurethane Dispersions (PUD)
- Polyurethane Silan Resins
- Styrene-Butadiene-Copolymers
- UV-Curable Resins
- Waterborne & Solventborne Polyesters
- Waterborne & Solventborne Epoxy Esters
- Epoxy Curing Agents
- Waterborne Cathodic ED Resins
- Specialty Additives
- Amino Resins
- Blocked Isocyanate

Applications

- Automotive OEM Coatings
- Automotive Refinish Coatings

Coating Layers

- E-Coat
- Primer
- Base Coat
- Clear Coat

VARENA BRANDS for AUTOMOTIVE COATING SOLUTIONS



VaraCryl; ACRYLIC SOLVENT-BORNE 2K-PU RESINS

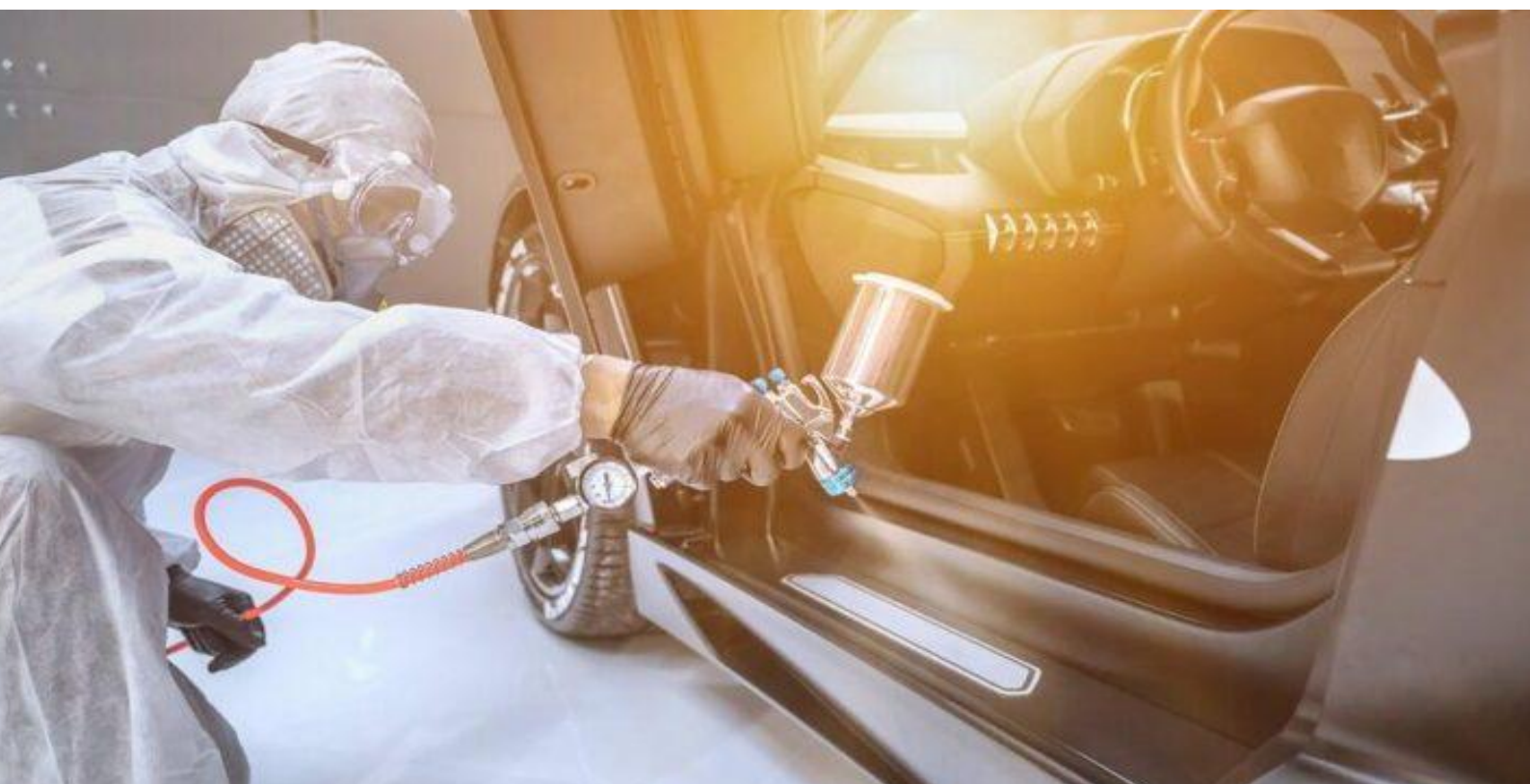
Product	Solvent	Solid [%]	OH-value [%]	Viscosity [mPa.s] / 20°C	Main uses and characteristics
A 2220	BuAC	60	2.0	1.000 – 2.000	Acrylate copolymer for the manufacture of high quality plastic coatings.
A 2244	X / BuAC / S100	60	4.5	3.000 – 5.000	For high quality industrial and machine paints, also for car finishes with excellent UV-stability.
A 2214 H	BuAC	70	4.2	10.000 – 15.000	For the production of high quality industrial PU-coatings, varnishes based on A 2214 show excellent water, solvent and chemical resistance. This resin can also be used for the formulation used by car refinish paints. Crosslinking with aliphatic isocyanates achieves good adhesion to steel. Tg=36°C.
E 2212 H	BuAC	70	3.6	1.000 – 3.000	With Desmodur N, in the formulation of high-solids two-K polyurethane coatings with good gloss retention, light fastness and resistance to chalking; especially suitable for automotive finishing applications.
CY 2463	BuAC	50	2.0	3.300 – 4.800	Industrial wood coatings, primers and clearcoats and topcoats, with good compatibility, very high reactivity, pot life, stack ability, and yellowing resistance. CY 2463 is recommended for 2-component PU auto refinish, plastic and industrial coatings.
A 2141 H	BuAC	70	4.1	25.000 – 35.000	A 2141 is an acrylate polymer for the production of high quality industrial paints. Such two component lacquers are high-solid systems. Even dried at room temperature you get coatings which show outstanding gloss, hardness, chemical- and weather-resistance. Application fields for A 2141 are high solid paints for facade elements, caravans and plastics. Tg=38°C.
A 2221 H	BuAC / X	70	1.2	5.000 – 10.000	For air-dried and forced drying two-component paints, when diluting the solution clears up, which also colorless coatings easily can be produced. A 2221 is particularly suitable for quick drying production of primers, which can be sanded after a very short time. In topcoat systems achieve gloss systems with good gloss retention.
A 2287 UH	BuAC	80	4.5	2.000 – 10.000	For ultra high solid clear coats and topcoats, quick drying and good UV-resistance.
A 2454 H	BuAC	75	4.5	5.000 – 10.000	For the preparation of high quality, high solids 2K-PU topcoats, with high chemical resistance, it suitable for formulation of high quality car refinish paints.
A 2444	BuAC	60	4.5	2,000 – 4.000	For production of high quality 2K topcoats, industrial and machine painting, as well as for the painting of large vehicles up to car refinish paints, excellent mechanical properties, weather stability and chemical resistance.
A 2379	BuAC	70	3.9	2.000 – 4.500	In combination with aliphatic polyisocyanates for 2K-clear- and topcoats used in high-quality industrial coating, the hardened paint films are hard, viscoplastic, high glossy, filling, also weather and light resistance and good solvent and gasoline resistance and fast drying.

VaraCryl; ACRYLIC SOLVENT-BORNE 2K-PU RESINS

Product	Solvent	Solid [%]	OH-value [%]	Viscosity [mPa.s] / 20°C	Main uses and characteristics
A 2311	X / BuAC	60	1.8	1.000 – 3.000	A low-viscosity styrene acrylate resin for the production of high-solids, fast drying 2K primers and topcoats, and one-coat paints., metal and plastic, good adhesion good hardness and good resistance properties.
AP 3233 UH	BuAC	78	3.9	10.000 – 30.000	Polyester modified high solid acrylic resin for 2-component polyurethane coatings, and also for auto refinish.
A 2315	PM	65	4.3	4.000 – 6.000	Acrylate for the production of PU-systems, high quality, high solid, especially resistant topcoats and primers.
A 2114	S100	60	1.4	2.000 – 4.000	For quick drying industrial coats with high gloss and good stability.
A 972	EEP	70	3.1	4.000 – 6.000	ACE (agriculture and construction equipment), car refinish, commercial vehicles and protective marine coatings.
A 953	BuAC	55	4.2	3.000 – 5.000	Automotive repair and general industrial applications.
A 2432	X / BuAC	60	1.3	5.000 – 7.000	For air two-component polyurethane and forced drying metal, wood and plastic paint. Even at room temperature drying to obtain coatings with the high hardness, chemical resistance and excellent weather resistance.

The fastest dry with the longest potlife

Our [VaraCryl](#) (Fast Cure) acrylic polyol product range for clearcoats and primers enables the formulation of the fastest drying clearcoat systems in the industry while maintaining appearance and potlife. This product range increases your customer's profitability via the benefit of improved body shop throughput.



VaraLac; ALKYD SOLVENT-BORNE RESINS

Type	Oil [%]	Oil type	PA [%]	Color/ Gardner	Acid value [mgKOH/g]	Flow time 20°C [s]	Supply Form [%]	Main uses and characteristics
S 2549	50	Soya oil	27	max. 10	max. 15	60 – 65 (40% in ws 145-195)	55 in ws 145-195	Fast drying automotive and machinery refinishing enamels.
VS 2162	41	Special fatty acids	28	max. 10	max. 20	3.00 – 7.500 mPa.s /20°C	50 in dearmat. HC 160-200	Extremely fast drying car refinishing, machinery and industrial paints with high gloss, good through drying.
VS 2163	43	Special fatty acids	23	max. 10	max. 10	130 – 150 (50% ws 130-175)	75 in dearmat. HC 160-200/MPA	Extremely fast drying car refinishing, machinery and industrial paints with high gloss, good through drying.
VS 2543	50	Special fatty acids	24	max. 10	max. 15	50 – 70 (40% in ws 145-195)	55 in ws/x	Fast drying car refinishing, machinery and industrial paints with high gloss, good through-drying.
AM 2199	50	Air-drying fatty acids	25	max. 7	max. 7	520 – 1.000 mPas/25°C	55 in white spirit / xylene / butanol (89/9/2)	Used in automotive repair enamels, enamels for cars, trucks and buses, enamels for tractors and agricultural equipment and also for air-drying industrial enamels, good drying properties, very good body, good colour, gloss retention and exterior durability.
SF 2310	31	Saturated fatty acids	43	max. 3	max. 10	4450 ± 550 23°C	60 in solvesso 100	Automotive topcoats (OEM). The resin has excellent film and mechanical properties and is weather-stable and resistant to yellowing and acids.
SD 2027	50	Special vegetable fatty acids	24	max. 10	max. 15	120 – 170 (40% in dearmat. HC 160-200)	50 in dearmat. HC 180-220	SD 2027 is a medium-oil, quick-drying alkyd resin for the universal use in air- and heat-drying industrial, automotive and machine paints.
SM 3400	34	Drying vegetable fatty acids	30	max. 10	max. 20	90 – 110 (50% xylene)	60 in xylene	Fast drying primers and paints with excellent durability, with amino resins reactive stoving films with good stability, ``Laroflex`` (BASF) compatibility.



VaraSol Alkyd Emulsions

The Godfather of the Industry



VaraSol AG 584 is a short oil, water thinnable alkyd resin for stoving systems.

VaraSol AG 584 has been developed for the manufacture of water thinnable stoving systems like primers, clear and top coats. The delivery form, 2% cosolvents, allows formulations with a total solvent content < 2%. As reactive partners for the curing range 140-180 °C methylated melamine resins like Cymel 303 (Allnex), KOMELOL MM 90/GE (Melamin) and Maprenal MF 904 (Prefere) have proved to be suitable. By the use of reactive melamin resins like Cymel 327 (curing temperature 120 - 140°C) the addition of approx. 3 % butyl glycol is necessary to get a better storage stability.

VaraSol; ALKYD WATER-BORNE RESINS

Type	Oil [%]	Acid value [mgKOH/g]	pH value DIN 53785	Viscosity, [mPa.s]/23°C	Flow time 20°C [s]	Supply Form [%]	Main uses and characteristics
AG 584	30	-	6.7-8.5	1.000–20.000	-	44 in water / BG (1,0%)	For waterborne stoving systems, high gloss, good mechanical properties, total co-solvent content < 1%.
AZ 600	26	-	6. 7-8.5	500 – 1.000	-	42 in water	Industrial metal primers, insulating wall paints, interior industrial wood stains and stoving enamels.
E 230 W	33	15-20	7.5-8.5	max. 10.000	-	42 in water	Short-oil alkyd emulsion for (drier- free based) anticorrosive primers and topcoats.
AZ 467	30	35-45	-	-	-	60 in water / BG / sec.butanol	Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.
AF 565 W	40	-	7.0-9.0	200 – 450	-	53 in water	Medium oil, co-solvent and amin free alkyd emulsion, interior / exterior primers and topcoats for wood and metals, primers and topcoats for Joinery application and corrosion resistant primers, with drying speed, leveling, film hardness, gloss level, yellowing resistance, exterior durability and water resistance.
AZ 461	30	35-45		70-90 (50% in BG)	-	75 in BG / sec.butanol 1:1	Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.



VaraHydrol; WATER-BORNE ACRYLIC POLYOL RESINS

Product	Solvent	Solid [%]	pH value	OH-Value [%]	Viscosity [mPa.s]/20°C	Main uses and characteristics
AH 9530	Water / solvent blend	44	7.0 - 9.0	3.0	max. 6.000	Water emulsified hydroxyacrylate for the production of exterior resistant isocyanate crosslinked two component topcoats with outstanding drying properties
AH 9540	Water / solvent blend	45	7.0 - 9.0	4.1	max. 25.000	For the production of isocyanate crosslinked exterior resistant two component topcoats with exhibit long potlife, high gloss and good adhesion properties.
AH 9542	Water / propylenglycol -n-butylether / S100	45	7.0 - 8.5	4.1	max. 6.000	AH 9542 W is a water-emulsified hydroxyacrylate for the preparation of isocyanate-cured, exterior-resistant 2K topcoats, characterized by long pot life.
AH 9543	Water /butylglycol / EEP	45	7.0 - 9.0	4.1	<20.000	For the preparation of isocyanate-cured, exterior-resistant 2K topcoats, which are characterized by a long pot life, high distinguish gloss and good adhesion properties.
AH 9544	Water	42	7.0 - 9.0	4.2	max. 2.000	For the production of isocyanate cross-linked two component topcoats which exhibit long pot-life.



VARAPUR SI
SILANE FUNCTIONAL POLYURETHANE UREA

VaraPur SI; SILANE FUNCTIONAL POLYURETHANE UREA

Product	Solvent	Solid [%]	Viscosity [mPa.s]/20°C	Main uses and characteristics
VaraPur SI 584	BuAC / n-propanol	78	max. 10.000	Silane-modified, aliphatic polyurethane based on linear polyetherpolyol, good adhesion to various substrates can be achieved, this could iron and non-ferrous metals.
VaraPur SI 206	BuAC / n-propanol	60	max. 15.000	A high molecular, moisture-curing, silane-modified, aliphatic polyurethane, based on an aliphatic branched polyester, suitable for the formulation of clear- and topcoats, at room temperature or forced drying. Due to the higher molecular weight it is characterized by a very good physical drying. The equally fast chemical crosslinking leads to high resistances, which are achieved after short times.



Properties of silane-functional polyurethane-urea binders compared to classic two-component polyurethane coatings.



VARAPUR SI
SILANE FUNCTIONAL POLYURETHANE UREA

Resistance QUV Rapid weathering

POLYURETHANE CHEMISTRY

For flexible plastics, coatings must not only protect the plastic substrate, but also be just as elastic. With their tunable flexibility, polyurethanes are an ideal solution.

Most polyurethanes are reactive systems that require curing with the use of a hardener or crosslinker. Yet, some plastics are sensitive to the reactive curing process. For sensitive substrates, it is preferable to use a non-functional or non-reactive flexible polyurethane system that cures via a physical drying process.

VaraFlex EU non-functional linear polyurethanes from VARENA are designed for the formulation of flexible, physically drying solventborne primers, basecoats and topcoats for plastics.

The hardness of these coatings is due to interactions between the polymer molecules, rather than through the formation of a crosslinked network. They are very flexible as a result.

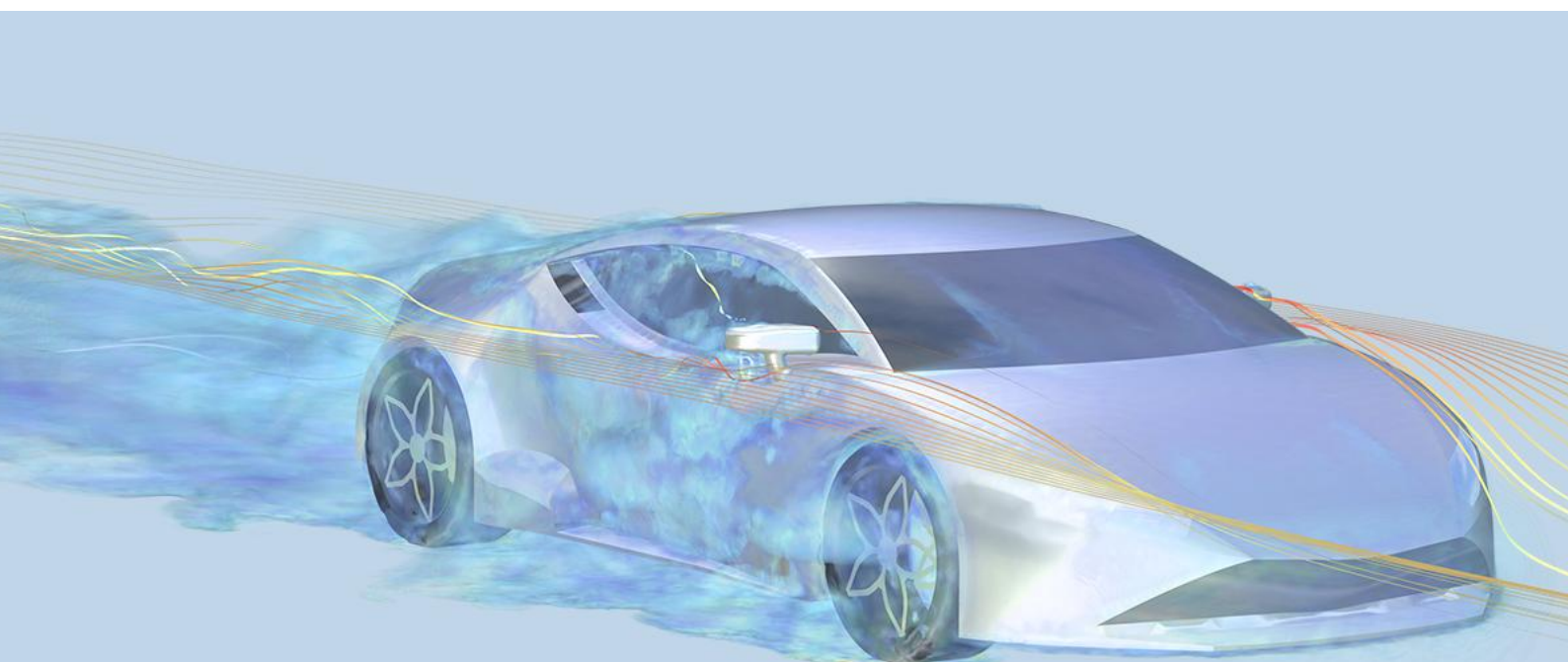
The addition of a polyisocyanate that can undergo a mild crosslinking reaction with moisture in the air once the coating is applied is an effective way to increase the solvent resistance of coatings based on physically drying VaraFlex PU binders. Desmodur N 75 (10-20% based on solid resin) is a recommended grade for this purpose.

VaraFlex EU non-functional resins are also used as co-resins in coatings applied to other flexible substrates.

PLASTIC COATINGS

VaraFlex EU adheres to all kinds of plastic substrates. Resistance to abrasion, chemicals or light, pigmentability, good compatibility with other systems or flexibility – all these specifications are met efficiently by this VARENA product line, facilitating the formulation of outstanding plastic coatings and primers.

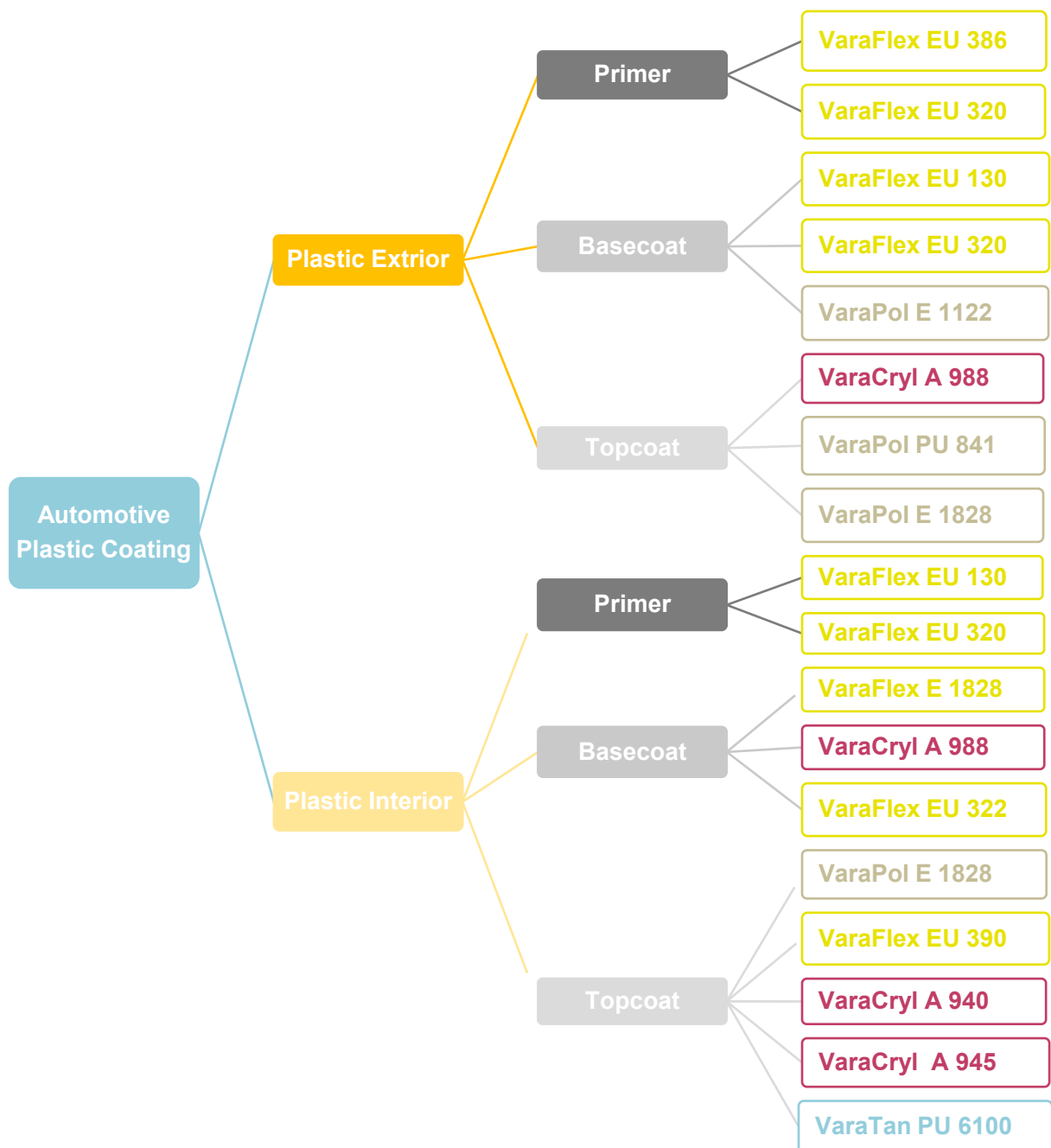
In **Shoe-Sole Coatings** **VaraFlex EU** contributes the necessary flexibility and also promotes adhesion, abrasion resistance and gloss. In artificial-leather applications, VaraFlex EU provides the material with protective properties and gloss, while additionally preventing brittleness. In the field of Rigid Plastic, enormous benefits are derived from VaraFlex acting as co-binders in polyurethan plastic coatings for plastics, such as **PS, PP, ABS, PMMA, PVC, PUR, PP/EPDM, PA and PC**: our products enable optimum adhesion, including intercoat adhesion, are extremely resistant to chemicals, abrasion and light, and have good pigmentability.





PU-PLASTIC COATING

Plastics Product Selector



The exterior of a vehicle is a particular challenge to every paint system. Apart from environmental influences such as the weather and chemicals, designers must bear abrasion resistance, stone-chipping and other such factors in mind. We offer complete binder technologies for complete coating, paint and colouring systems for these complex plastics applications.

**VARAFLEX**

URETHANE ELASTOMER COATING SOLUTIONS

VaraFlex EU; SOLVENT-BORNE; 1K and 2K-URETHANE ELASTOMER

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	Isocyanate Modification	Description	Primer	Basecoat	Topcoat	1K	2K
EU 130	30 in M	6.400 – 9.000	aliphatic	Plastic coatings: clear and pigment dent coatings for PVC, PA, ABS, PUR foam and in mould coatings. Metallic base coats for plastics	X			X	
EU 386	35 in X	700 – 1.200	aromatic	Flexible primer for PP, PP/EPDM. Car refinishing. Excellent adhesion to common plastics types, brilliant metallic and deep glossy blacks.	X			X	
EU 320	30 in tert.B / BuAC	250 – 650	aliphatic	Solvent based elastomeric with good adhesion on flexible and rigid substrates. Excellent adhesion, good mechanical properties, can be crosslinked with isocyanates.	X	X		X	X
EU 322	51 in M	4.000 – 6.000	aliphatic	An aliphatic polyurethane elastomer with reactive hydroxyl groups, which in combination with poly-isocyanate resins, e.g. Tolonate HDB or Desmodur N, provide flexible coating systems with good adhesion to many plastic substrates.	X	X		X	X
EU 390	30 in M	550 – 1.000	aliphatic	EU 109 is aliphatic polyurethane elastomer for clear and pigmented coatings for PVC, ABS, PUR, Automotive: metallic basecoats for plastics.		X	X	X	
EU 391	30 in IB/X	1.700 – 2.300	aliphatic	Clear and pigmented coatings for solvent sensitive plastics, PS, ABS, printing inks. Physically drying Automotive metallic base coats for plastics.			X	X	



DASHBOARD



AIR VENT GRILL



DRIVER BEZEL

GEAR SHIFT & GEAR SHIFT
LEVER BASE

Elastomer coatings solution that meet the most stringent automotive requirements.

**VARAFLEX**

URETHANE ELASTOMER COATING SOLUTIONS



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VaraPol; POLYESTER SOLVENT-BORNE RESINS

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	OH/ Solid [%]	Description	Primer	Basecoat	Clearcoat	Topcoat
E 1068	60 in X	2.250 – 3.250	3.0	Air-drying automotive, plastic coatings.	X	X		X
E 1870	80 in BuAC	2600 – 3.400	4.5	Air and forced drying ultra-high-solid two- component polyurethane systems for industrial and automotive repair coatings.		X	X	X
E 1828	80 in BuAC	3.500 – 5.500	5.2	Automotive OEM and repair coatings. In combinations with polyisocyanates very good chemical and weather resistance and excellent low temperature flexibility will be achieved.			X	X
PU 841	95 in X	12.000-16.000	5.5	Ultra high solid normal and forced-drying, two- component polyurethane systems. Adhesion on metal and plastics with flexibility and outdoor durability.	X		X	X
PU 846	100	800 – 1.100	7.2	Polyester for 2- component polyurethane coatings, high gloss, UV light and heat resistance, weathering resistance	X		X	X



Plastics at the performance of metal with UV coatings

More and more, plastics replace metal in automotive interiors. We have the largest portfolio of UV/EB (**VaraRad UV**), waterborne UV (**VaraCoat**) and dual cure resins for protective coatings, functional coatings, in-mold decoration (IMD) and Physical Vapor Deposition (PVD) for automotive interior applications. Our resins allow OEM and their suppliers to meet the tough requirements in terms of in-use performance, productivity, sustainability and versatility of the plastic parts.

- Chemical and mechanical resistance
- Fast curing/dual cure
- Flexibility for thermoforming/IMD



VaraRad UV; UV-CURABLE

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	Main uses and characteristics
UV 4561	55 in BA	2.500 – 4.000	Hydroxyl group containing polyester acrylate, curing with isocyanate and radiation (dual cure), non-adhesive and scratch-resistant, for non-yellowing coatings. OH=4.5.
PUV 4500	100	40.000 – 60.000	Polyester acrylic resin for the formulation of UV and electron beam curing varnishes, lacquers, and paints. It is a nearly colourless resin with good reactivity. It forms elastic, scratch and chemical-resistant films with good adhesion properties even on plastic surface.
EUV 4800	100	12.000 – 25.000	Low viscous, low odour epoxy acrylate for the production of UV/Electron beam curing varnishes and lacquers with high hardness, very high reactivity, good pigment wetting, forms hard scratch resistant, durable films, chemical resistant.
EUV 4405 W	40 in water	50 – 200	VaraRad 4405 W is an aqueous anionic, UV curing, epoxy-modified polyurethane acrylic emulsion for plastic coatings.
UV 1996	80 in HDDA	max. 70.000	An acrylic modified short oil alkyd, UV curing, for metal, wood, plastic coatings.
EUV 5060 W	60 in water	500 – 1.500	An aqueous anionic, UV curing, epoxy-modified polyurethane acrylic emulsion for plastic coatings. pH= 6.0



POLYESTER PUTTY

Polyester Putty is elastic and very easy to sand. Polyester putty is re-sprayable with all lacquer systems and resistant to chemicals and the weather.

LOXAPAL-RESIN; UNSATURATED POLYESTER FOR PUTTY

PRODUCTS	Characteristics	Nonvolatile Content [%]	Viscosity [mPa.s]/23 °C	Gel Time [min]	Peak Exotherm [°C]	Application
P-958	P-958 is an amine-accelerated unsaturated polyester resin which is cold curing, even around 0 °C, and yields polymers of medium hardness. It is used as a binder for highly filled, coarse and fine knifing fillers for use on metal, wood and mineral substrates. Because of the high reactivity of this product, fillers based on this product achieve early dry sandability, especially with sanding machines.	60.5 - 63.5	500 - 550	10 - 16	135 - 165	Surfacers, fillers and putties.
P-956	P-956 is a medium-viscosity unsaturated polyester resin with high reactivity, which is pre-accelerated using a polymeric amine to give fast curing with benzoyl-peroxide. It also has very good elasticity properties.	61 - 63	350 - 450	10 - 15	85 - 100	Surfacers, fillers and putties.



Which is the best car putty?

Flexible, elastic and not highly porous

High porosity can hinder the sanding process and compromise the quality of the final repair. On the other hand, it must be **flexible and elastic to properly absorb shocks and vibrations** without cracking or detaching.

An essential feature of a good polyester putty is how easy it is to apply to obtain a **smooth and even surface**.



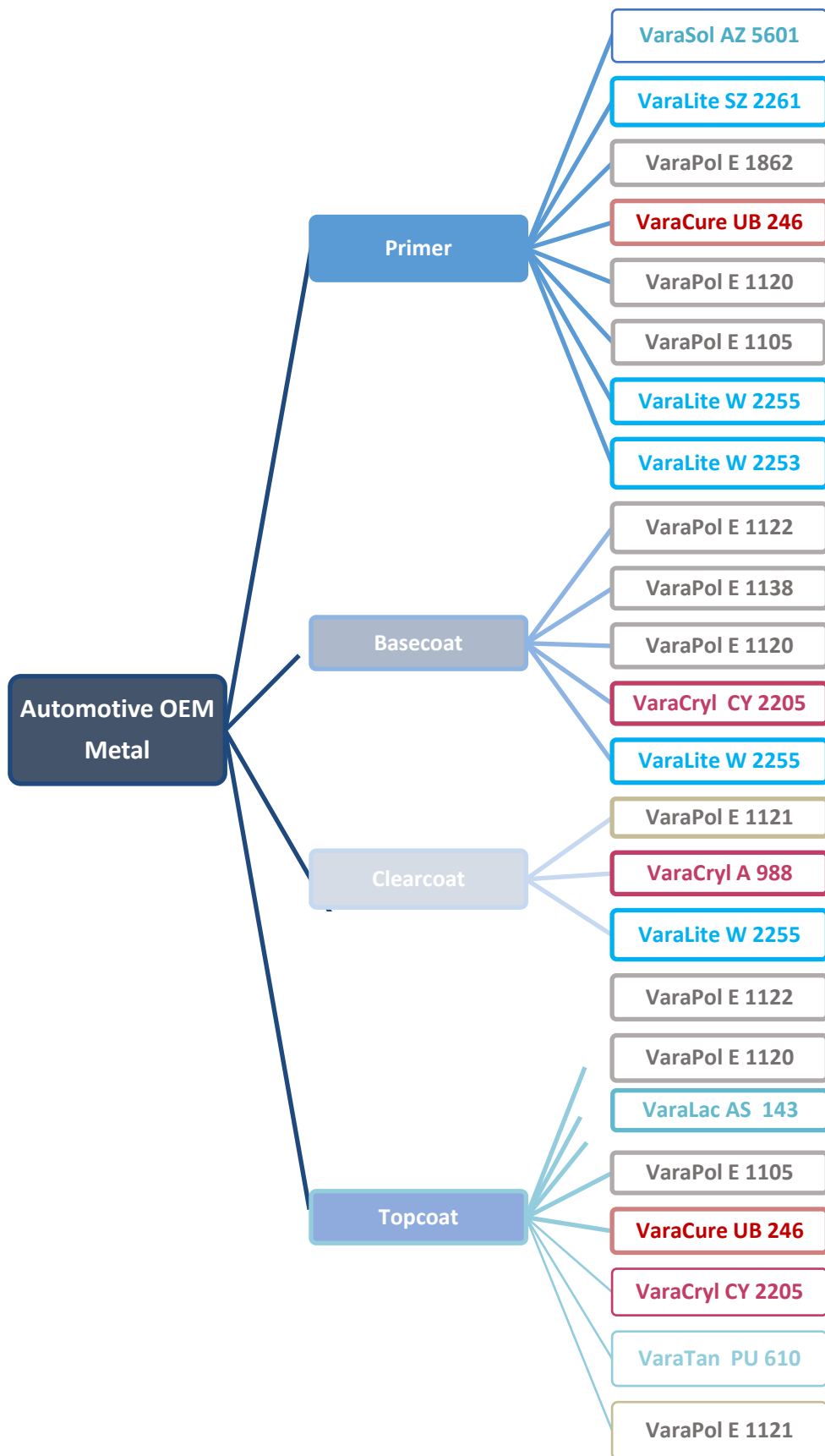
loxapal
UNSATURATED POLYESTER



EXCELLENCE IN AUTOMOTIVE OEM

Our additives and resins enable the use of high-performance, low-VOC waterborne, solventborne, and high solids automotive OEM coatings by optimizing the automotive coating formulation, application process, and final coating system, thus improving coating performance and environmental friendliness while reducing cost.

Our products provide benefits to all layers of automotive OEM coatings: primer/surfacer, base coat, and clear coat.



AUTOMOTIVE OEM COATING



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VaraPol; SATURATED POLYESTER RESIN

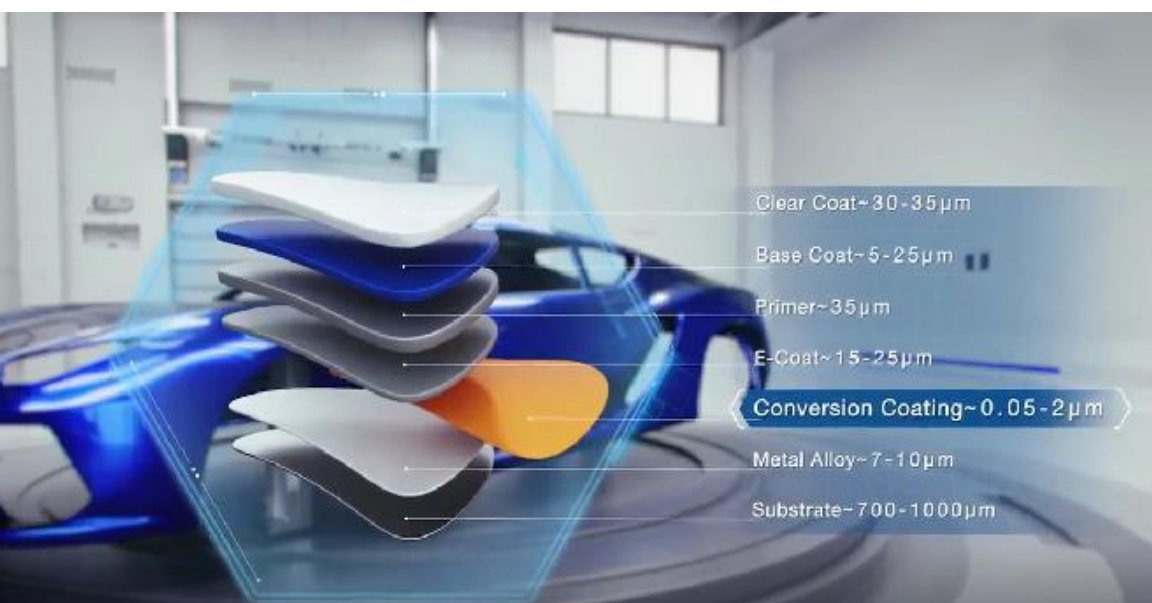
Product	Supply Form [%]	Viscosity [mPa.s]/23°C	OH /Solid [%]	Description	Primer	Basecoat	Clearcoat	Topcoat	1K	2K
E 1068	60 in X	2.250 – 3.250	3.0	Air-drying automotive	X	X		X		X
E 1105	70 in X	3.000 – 4.000	2.6	For clearcoat and top coat with excellent adhesion to steel and aluminium and offers high solid content with outdoor durability.			X	X	X	
E 1108	60 in X/BGA	500-900	3,0	2K-PU-Systems, low viscose, high solid, good adhesion and flexibility.	X			X	X	X
E 1120	70 in X	4.000 – 6.000	2.4	1K-stoving primers, topcoat and basecoat for Automotive OEM and railway.	X	X		X	X	
E 1121	72 in S1/X	4.500 – 5 800	4.0	Automotive OEM clear coats with excellent UV- and chemical resistance			X	X	X	
E 1122	70 in S1	6 000 – 8.000	2.5	Solid color topcoats specific for 1K-stoving primers, topcoat and basecoat for automotive OEM and 2K-PU auto refinish and plastic coatings.	X	X		X	X	X
E 1130	75 in X	2.000 – 3.000	3.1	Two-component air drying PU-Systems, car refinishing and 1K-OEM.	X	X		X	X	X
E 1138	65 in X	600 – 1.100	2.5	Automotive OEM base coats.		X			X	
E 1805	65 in MPA	17.000-23.000	8.8	Excellent weather stability, lightfastness, gloss retention, good chemicals and abrasion resistance			X	X		X
E 1862	70 in S1/F	3.000 – 6.000	2.8	Automotive primer surfacers.	X				X	
E 1828	80 in BuAC	3.500 – 5.500	5.2	Automotive OEM and repair coatings. In combinations with polyisocyanates very good chemical and weather resistance and excellent low temperature flexibility will be achieved.			X	X		X
E 1870	80 in BuAC	2.600 – 3.400	4.5	Air and forced drying ultra-high-solid two-component polyurethane systems for industrial and automotive repair coatings.			X	X		X
E 3802	100	3.000– 10.000	3.0	For flexible 2-component NCO-curing systems.	X			X		X
E 2549	75 in BuAC	2.000 – 5.000	4.4	Higher solids, high durability, no loss of gloss and no yellowing in QUV.	X		X	X	X	X
E 1140	100	4.000 – 7.000	1.7	A linear, solvent free polyester containing hydroxyl groups in the formulation of flexible PU coatings.			X	X		X
E 1162	100	15.000-20.000	1.3	The flexibilizing component				X		X



VARAPOL POLYESTER
INNOVATION

VaraPol; SATURATED POLYESTER RESIN

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	OH / Solid [%]	Description	Primer	Basecoat	Clearcoat	Topcoat	1K	2K
E 1125	81 in BuAC	9.000-13.000	5.0	It is therefore particularly suitable for the formulation of anti corrosive primers for industrial use, finishes for agricultural machinery.	X			X	X	X
E 1135	100 75 X 75 BuAC	5.000-20.000	5.0	Excellent wetting properties, good compatibility. In combination with aliphatic or aromatic polyisocyanates, air- and stove-drying two-component coatings with good weathering resistance.	X			X	X	X
E 1180	100	18.000-23.000	2.2	In combination with Desmodur for the production of highly flexible 2-K adhesives for glossy foil lamination and for softfeel coatings, high flexibility.	X		X	X		X
E 1181	81 in BuAC	2.200 – 3.800	6.0	Low molecular linear polyester polyol resin, for the formulation of 2-K-PU for high build coatings.		X	X	X		X
FS 1300	100	2.500 – 4.500	4.7	Polyester-polyether polyol, for 2-K coatings and castings. Automotive refinish, underbody, plastic coatings with excellent chemical resistance.	X		X	X		X
AB 1733	90 in X	2.000 – 2.400	-	Used in heavy duty topcoats for metal, marine; protective paints and concrete and masonry paints and reinforced polyester coatings.	X			X	X	





VARAPOL POLYESTER
INNOVATION

VaraPol; SATURATED POLYESTER RESIN

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	OH /Solid [%]	Description	Primer	Basecoat	Clearcoat	Topcoat	1K	2K
SC 1891	65 in X/E	3.000 – 5.000	6.3	Acrylic modified polyester, offers reactivity and adhesion			X	X	X	X
PU 841	95 in X	12.000-16.000	5.5	Ultra-high-solid normal and forced-drying, two-component polyurethane systems. Adhesion on metal and plastics with flexibility and outdoor durability.	X		X	X		X
PU 846	100	800 – 1.100	7.2	Polyester for 2-component polyurethane coatings, high gloss, UV light and heat resistance, weathering resistance	X		X	X		X
PE 1423	78 in BuAC	10.000-45.000	7.8	Polyester for 2-component polyurethane coatings, high gloss, UV light and heat resistance, weathering and chemical resistance.				X		X
W 2341	Solvent free	< 1000	6.0	A saturated, aliphatic, extremely low viscosity polyester resin for the modification of 2K primers, single-coat and topcoats.	X	X		X		X
P 1625	75 in BuAC	3500 – 4500	5.4	2K-PU and 1K-aminoplast. Extremely good outdoor durability, no loss of gloss and no yellowing.			X	X	X	X



VaraLite; WATER-BORNE SATURATED POLYESTER RESIN

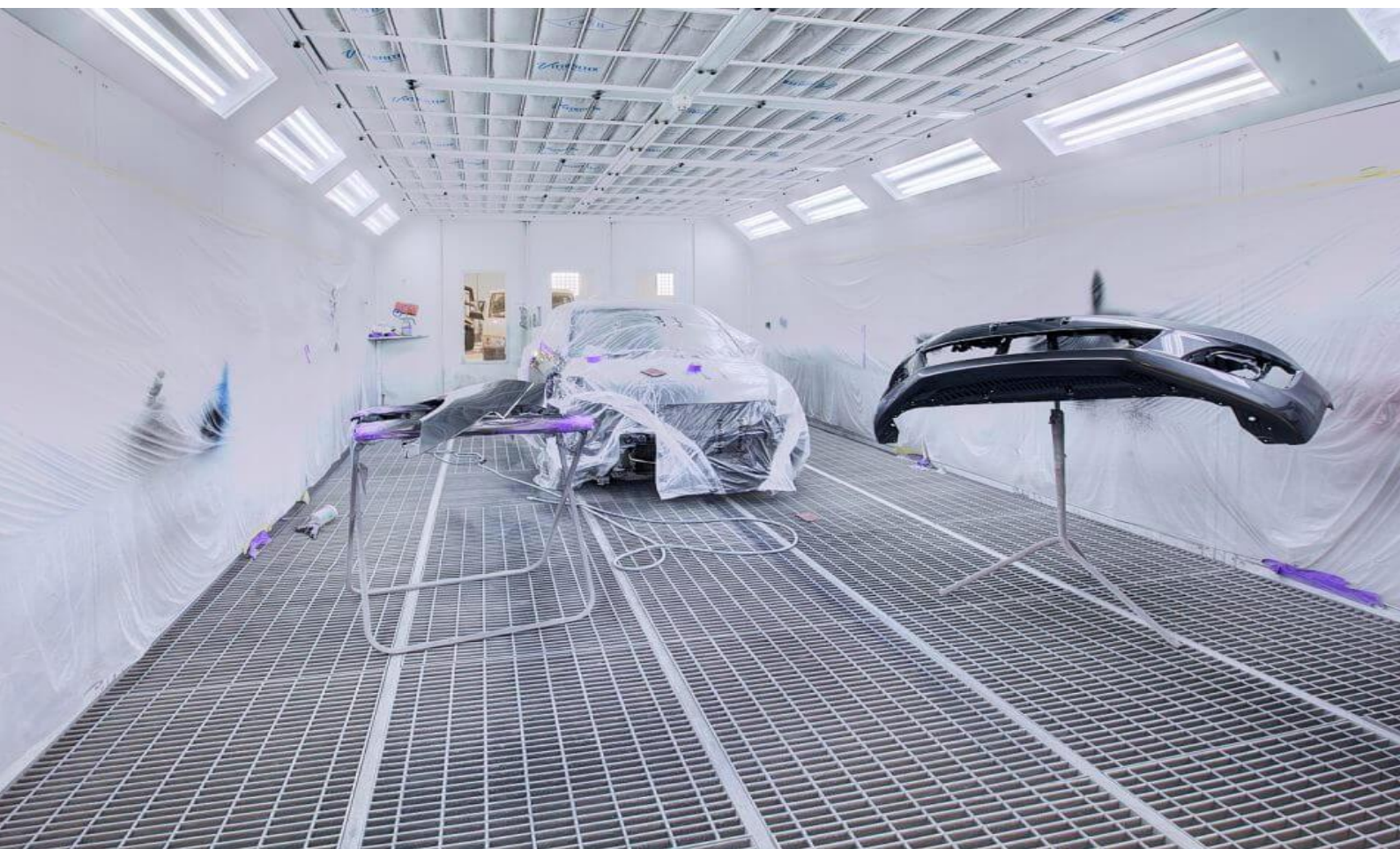
Product	Supply Form [%]	Viscosity [mPa.s]/23°C	Acid Value [mgKOH/g]	OH /Solid [%]	Description
P 1091	80 in butylglycol	45.000-70.000	45-60	4.3	Branched saturated polyester resin for waterborne industrial, automotive stoving systems.
P 1094	40 Water / butylglycol (2.1%)	max. 20.000	48-58	3.7	Branched saturated polyester resin for waterborne industrial stoving primers, fillers and topcoats with low VOC. pH=7.5-8.5, very reactive.
W 2251	70 in water / butylglycol	2.700 – 3.500	50-58	3.0	Automotive coatings, 1 K-primers.
W 2255	65 in butylglycol / water	7.500 –17.500	40-60	3.5	General industry, stoving enamels for interior and exterior use primers and topcoats and automotive coatings; primer surfacer, clearcoat and topcoat., gloss level, flexibility, outdoor durability and stone chip resistance.
W 2259	68 in water / DMEA	2.700 – 3.500	45 - 50	3.5	Water-borne saturated polyester for topcoats and primers., overback resistance, adhesion to aluminium and phosphated steel with outdoor durability and overbake resistance.
W 2260	65 in butylglycol	7.000–11.000	57 - 63	1.2	Acrylic modified waterdilutable saturated polyester resin for water dilutable resin for can and coil coatings, exterior white basecoat and overprint varnish for beer and beverage cans and coil coating primer with flexibility, reactivity and good physical drying.
W 2261	65 in water / butylglycol / dimethyl ethanol amine	10.000-25.000	40-50	3.4	Acrylic modified waterdilutable saturated polyester resin for water dilutable resin for stoving enamels for interior and exterior use, gloss level, flexibility and outdoor durability.
W 2270	80 in butylglycol	45.000-70.000	50 - 55	1.2	Acrylic modified, water-borne saturated polyester for automotive topcoats and primers.
W 2254	50 in butylglycol / water	7.000–11.000	50 - 55	1.3	Acrylic modified, water-borne saturated polyester for topcoats and primers.
W 2253	50 in butylglycol / water	900 – 1.400	45 - 50	3.2	Automotive coating, interior/exterior coatings.

VaraTan PUD; POLYURETHANE DISPERSIONS; WATER-BASED

Product	Solid [%]	Solvent	Viscosity [mPa.s]/20°C	pH content	Main uses and characteristics
PUD R-974	40	Water/NMP	100 – 300	7.5 – 8.5	A hard, low cosolvent containing polyurethane dispersion, used in wood and parquet lacquers, metal and plastic coatings, water resistant floor polishes. Provides hard, good chemical and abrasion resistance, offers good humidity resistance.
PUD M-36	38	Water	max. 140	8.0 – 9.5	PUD water-based dispersion and wax emulsion for the manufacture of dry-bright emulsions intended for floor polish, automotive polish, shoe polish and leather polish applications.
PUD 2500	30	Water	max. 100	7.0 – 8.5	PUD water-based dispersion for the manufacture of dry-bright emulsions intended for wood, flexible coatings, plastic coatings.
PUD 910	30	Water	max. 100	7.5 – 8.5	A self-crosslinking, aliphatic polyester polyurethane dispersion that can be formulated for high-performance coatings for wood and plastic. It has excellent hardness and black heel mark resistance, excellent chemical and plasticizer resistance, high gloss, excellent adhesion to multiple substrates and excellent fingernail mar resistance.
PUD 6100	36	Water	max. 200	8.0 – 9.0	An aqueous, colloidal anionic, low viscous dispersion of an aliphatic polyester-polyurethane without free isocyanate groups, very good on ABS, PC, PVC, PU, PA and PS, with very good pigmentability, suitable for automotive base coats, if combined with acrylic dispersions. Good plasticizer barrier on PVC-foils.
PUD 610	30	Water	max. 100	7.5 – 8.5	An aqueous, colloidal, low viscous dispersion of an aliphatic polyester-polyurethane. Used for automotive OEM topcoats and base coats. Offers very good pigmentability. Blocking temperature 140°C and MFT 0°C.

VaraCryl; SOLVENT-BASED ACRYLIC AMINOPLAST RESIN

Product	Solvent	Solid [%]	OH-value [%]	Viscosity [mPa.s]/20°C	Main uses and characteristics
CY 2205 CR	S100 / X / B	50	-	400 – 700	A thermosetting hydroxyacrylate resin used in combination with crosslinkers such as melamine resins baking coatings, e.g. automotive coatings with good weather resistance, hardness, gives excellent flow properties and high gloss.
CY 2206 CR	X / B	50	-	400 – 700	A thermosetting hydroxyacrylate resin used in combination with crosslinkers such as melamine resins baking coatings, e.g. automotive coatings with good weather resistance, hardness, gives excellent flow properties and high gloss.
CY 2207 CR	S100 / B / X	50	-	500 – 700	A thermosetting hydroxyacrylate resin used in combination with crosslinkers such as melamine resins baking coatings, e.g. automotive coatings with good weather resistance, hardness, gives excellent flow properties and high gloss.
CY 988	S100	65	4.2	4.500 – 8.000	2-K-PU, 1-K automobile clearcoats and plastic coatings.
AHS 2379	S100/BuAC/ PGMEA	70	3.9	870 – 2400	High-solid clearcoats for the automotive industry.



Electrocoat

Manufacturers are looking for advanced and environmentally friendly coating solutions to reduce costs while maintaining or improving the quality of their products. **VARENA AQUADIP ED 310** and **VARENA AQUADIP ED 316** could be the new solution for you! This 2K water-based epoxy with modified and 2K-water-based acrylic modified binder has been specially developed for cathodic electrodeposition. It is suitable for curing at lower temperatures and offers excellent properties while meeting environmental requirements. It also ensures robust operation, easy control and significant cost reduction for complex geometries.



The advantages of E-COAT

Compared to other surface technology processes, E-Coat results in significant material savings because there are no losses due to overspray. E-Coat electrodeposition coatings polymer from VARENA CHEMICAL are environmentally friendly and optimised for low energy consumption.



VARENA AQUADIP
WATERBORNE CATHODIC ED RESINS

VARENA AQUADIP ED 310 MP-65

Corrosion protection on a large scale: cathodic electro-dip coating

External cross-linking acrylate binder for application in cathodic electro dipping coating.

Applications and Properties

VARENA AQUADIP ED 310 MP-65 serves in combination with suitable curing agents (for example Additol VXW 6385) for the production of white or bright coloured electro dipping paints.

By means of suitable catalysis, for example with tin compounds, at baking temperatures of 160 °C, glossy and highly anticorrosive paint films can be manufactured.

Besides the conventional application as binder for pigmented primer or one-layer systems, **AQUADIP ED 310 MP-65** may also be applied as clear paint for the production of transparent protective coatings on iron and non-iron metals due to its non-yellowing tendency.

Delivery Form

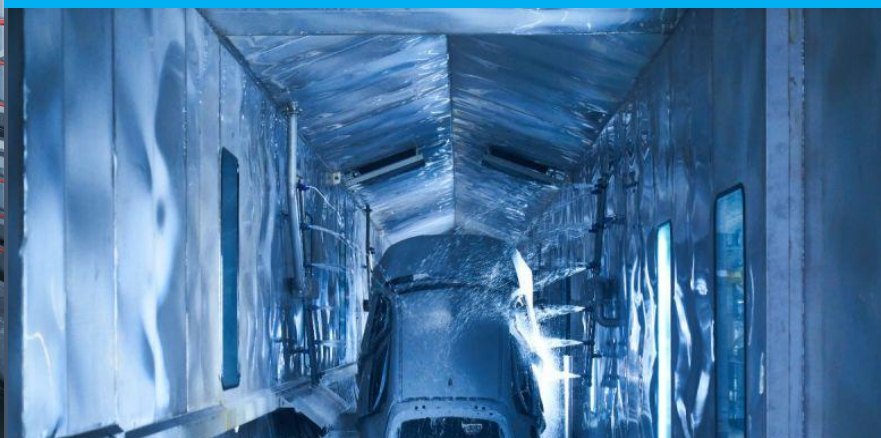
65 % in methoxypropanol (65MP), non-neutralized

Product Specifications

Property	Range	Unit	TM
Colour value	yellow-orange	-	Appearance VLN 250
Viscosity (25 °C), Brookfield, Sp.4 20 rpm.	40.000 – 50.000	mPa.s	DIN EN ISO 2555
Solid content	63 – 67	%	DIN EN ISO 3251
Acid-value	3 - 10	-	DIN 53183
OH-content, solid	approx. 4,5	%	DIN 53240/2
Flash point	approx.. 33	%	DIN EN 22719
Density, 20 °C	1,04	g/cm³	DIN EN ISO 2811

PROPERTIES

- Low temperature cure 125-160 C
- Easy to control
- Non hazardous
- Hard deposits 4H or more depending upon the cure used
- Enhanced wear resistance
- Excellent adhesion on all substrates
- Excellent throwing power
- High level of gloss without the use of high solvent concentrations



VARENA AQUADIP ED 316 Q-60

Corrosion protection on a large scale: cathodic electro-dip coating

External cross-linking E-Coat Epoxy-Amine binder for application in cathodic electro dipping coating.

Delivery Form

60 % in butyl glycol / water

VARENA AQUADIP ED 316 Q-60 is a hydroxyl rich, water soluble cathodic E.D. resin that contains a built in acid catalyst which means that it can be crosslinked with a melamine resin.

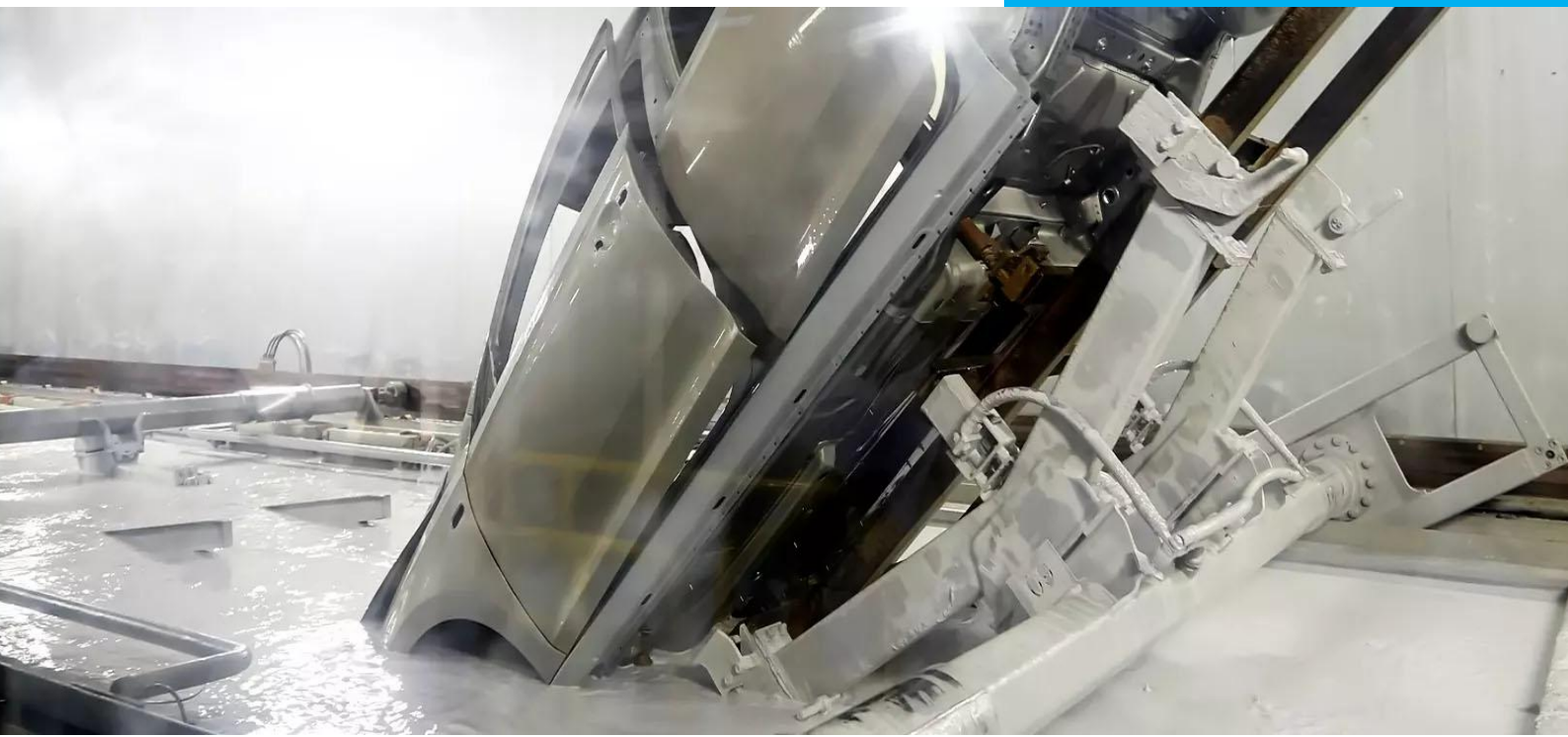
The resulting resin has excellent pigment wetting properties and exhibits excellent corrosion resistance.

Product Specifications

Property	Range	Unit	TM
Colour value	max. 2	-	Appearance VLN 250
Viscosity (25 °C), Brookfield, Sp.4 20 rpm.	10.000 – 20.000	mPa.s	DIN EN ISO 2555
Solid content	59 – 61	%	DIN EN ISO 3251
Acid-value	max. 1	-	DIN 53183
Density, 20 °C	1,025	g/cm³	DIN EN ISO 2811

PROPERTIES

- High cathodic corrosion protection
- Defined fiction properties
- Good adhesion and abrasion resistance
- High chemical resistance
- Electrical conductivity
- Extremely thin layer (8-12 µm)
- Resource saving



AMINO RESINS



VARENA AMINO CROSSLINKER TECHNOLOGIES FOR SECURE FUTURE

AMINO RESIN



Amino resins are thermosetting resins with excellent tensile strength, hardness and impact resistance. We provide specialized amino resins for use as baking finish curing agents in coating and electronics materials. Amino resins produce coating films with improved hardness and solvent resistance when used in combination with alkyd resins, acrylic resins, polyester resins or epoxy ester resins.

Amino Resins for Coatings

Amino resins are formed when formaldehyde and amino compounds such as melamine, benzoguanamine and urea undergo a condensation reaction and etherification with aliphatic monohydric alcohol.

Melamine Resins

Broad range of usage temperatures.

Excellent weatherability.

Benzoguanamine Resins

Excellent gloss, compatibility, workability, and adhesion.

Urea Resins

Excellent interlayer adhesion, workability, and adhesion.

VaraAmin; AMINO FORMALDEHYD RESINS MF, BF , UF

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	Main uses and characteristics
BF 908	62 in B	100 – 300	Methylol type, reactive, n- butylated benzoguanamine formaldehyde resin in n-butanol, high flexibility and gloss and therefore suitable for can-, packaging coatings and automotive primers.
BF 992	68 in B	400 – 600	n- butylated benzoguanamine formaldehyde resin in n-butanol, non- plasticized. Medium reactivity benzoguanamine resins, recommended for top quality stoving enamels, excellent gloss, very good compatibility, e.g. can coating and automotive: primer surfacers. Conforms to US FDA CFR 21 § 175.300 and EU 10/2011.
MF 825	65 in B/X	1.000 – 3.000	Imino type, reactive, n-butylated melamine formaldehyde resin. High reactivity melamine formaldehyde resin for general line with very flow and mechanical properties. Good film hardness, body and alkali resistance, für stoving finishes, especially for medium stoving temperature, low cure stoving finishes (80-100°C), addition to air-drying finishes for forced-drying at 80°C, e.g. car body repair finishes, coil coatings, acid curing coatings on wood automotive, basecoats and topcoats.
MF 890	55 in IB/X	260 – 460	Methylol type, highly reactive, iso-butylated melamine formaldehyde resin in iso-butanol and xylene, for top quality stoving enamels, General industry: stoving enamels, general purpose, packing coatings and automotive primers and especially (CAB) basecoats excellent gloss, very good compatibility.
MF 800	55 in B/IB	260 – 460	Imino type, highly reactive, n-butylated melamine formaldehyde resin in n-/iso-butanol for top quality stoving enamels, automotive OEM primer, base- and clearcoats, excellent gloss, very good compatibility.
MF 850	55 in IB	300 – 500	Imino type, highly reactive, iso-butylated melamine formaldehyde resin in iso-butanol for top quality stoving enamels, Especially for automotive (CAB) base and topcoats. Due to high compatibility to medium and long oil alkyds for vehicle refinishing and drum- mirror coatings, printing with excellent gloss.
MF 818	70 in B	700 – 1.200	Imino type, n- butylated melamine formaldehyde resin in n-butanol, very high reactivity melamine formaldehyde resin with very good compatibility, excellent sprayability, good petrol- and acid resistance, high gloss for general line, can coating and automotive with very flow and mechanical properties.
MF 880	80 in B	3.300 – 10.700	Imino type, n- butylated melamine formaldehyde resin in n-butanol, very high reactivity melamine formaldehyde resin with very good compatibility, excellent sprayability, good petrol- and acid resistance, high gloss for general line and automotive with very flow and mechanical properties.
MF 717	84 in B	3.800 – 10.670	Imino type, highly reactive, high solid, methylated melamine formaldehyde resin. MF 717 could be used in various solvent and waterborne stoving enamel paints eg like solventborne & waterborne automotive base & topcoats, solvent borne coil, drum and mirror backing coatings.
BF 960	60 in IB/B/X	100 – 300	Methylol type, reactive, n- butylated/iso-butylated benzoguanamine formaldehyde resin for can coating and coil coating (backing coat), Very high gloss / gloss retention, excellent sprayability, Wide compatibility with saturated polyesters, excellent pigments wettability, high compatibility with acrylic resins for coil coating.
BG 941	61 in Iso-B/B/X	170 – 240	Methylol type, high reactive, n- butylated benzoguanamine formaldehyde resin in n-butanol and xylene. High reactivity benzoguanamine formaldehyde resin recommended for top quality stoving enamels, e.g. can and coil coatings and also automotive primers, excellent gloss, very good compatibility.
MF 942	70 in B	470 – 500	Methylol type, medium reactive, n- butylated benzoguanamine formaldehyde resin in n-butanol. Medium reactive BF 942/70B resin to be used, in combination with polyesters, acrylics and / or epoxies, for exterior and interior can coatings, either basecoats or OPV. The main properties of BF 942 are: high gloss; good sterilization resistance; good flexibility; good over-baking fastness. Conforms to US FDA CFR 21 § 175.300 and EU 10/2011, Annex 1.
BF 991	77 in S2/B	10.000 – 18.000	n- butylated benzoguanamine formaldehyde resin in n-butanol and solvesso 150, non-plasticized low/medium reactivity benzoguanamine resins, recommended for top quality stoving enamels, excellent gloss, very good compatibility. Very high gloss/gloss retention, mechanical properties, sterilization resistance and low/medium reactivity.

VaraAmin; AMINO FORMALDEHYD RESINS MF, BF , UF

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	Main uses and characteristics
MF 856	50 in X/IB/B	6.000 – 8.000	Methylol type, highly reactive, iso-butylated melamine formaldehyde resin in iso-butanol / xylene. High reactivity melamine formaldehyde resin with very good compatibility, good petrol- and acid resistance, high gloss for general line, coil and can coatings.
MF 803	50 in X/IB/B	350 – 400	Methylol type, highly reactive, n- butylated and iso-butylated melamine formaldehyde resin in iso-butanol / xylene / n-butanol, with very good compatibility, good petrol- and acid resistance, high gloss for general line, coil and can coatings.
MF 827	60 in IB/B	500 – 700	Methylol type, high reactive, n- butylated/iso-butylated melamine formaldehyde resin in n-butanol/ iso-butanol, non-plasticized. High reactivity melamine formaldehyde resin for general line, can coatings: exterior, coil coatings with very flow and mechanical properties, very high gloss/gloss retention, excellent sprayability and wide compatibility with saturated polyesters.
UF 132	66 - 70 in IB	2.500 – 6.000	Iso- butylated medium/high reactivity urea formaldehyde resin with very good compatibility with epoxy resins and good stability, low level of free formaldehyde, in iso-butanol, non-plasticized resins for stoving and acid curing paints and coatings with low formaldehyde suitable for electrostatic spray applications, excellent for wood floorings and acid curing wood coatings, general purpose, amino-epoxy systems
UF 110	59 in B/X	2.100 – 2.800	Iso- butylated urea formaldehyde resin in iso-butanol and xylene, non-plasticized resins for stoving and acid curing paints. medium/high reactivity urea formaldehyde resin with very good compatibility with epoxy resins and good stability, low level of free formaldehyde
UF 162	62 in B/X	700 – 1.800	Iso- butylated medium/high reactivity urea formaldehyde resin with very good compatibility with epoxy resins and good stability, low level of free formaldehyde, non-plasticized resins for stoving and acid curing paints, general industrial, stoving primers and enamels, industrial wood coatings and coil coatings (backing coats).
UF 160	60 in B/X	1.000 – 1.300	Iso- butylated urea formaldehyde resin in n-butanol and xylene, non-plasticized resins for stoving and acid curing paints. medium/high reactivity urea formaldehyde resin with very good compatibility with epoxy resins and good stability, low level of free formaldehyde.





VARACURE
VARENA BLOCKED ISOCYANATE

VaraCure, BLOCKED ISOCYANATE UB

Product	Supply Form [%]	Viscosity [mPa.s]/ 23°C	NCO Content [%]	Description	Main uses				
					Primer	Basecoat	Topcoat	1K	2 K
UB 147	75 in S1	2.000 – 4.000	11.5	Blocked aliphatic polyisocyanate resin. Flexibility, chemical resistance and adhesion	X		X	X	
UB 146	80 in M	4.500 – 7.500	6.7	HDI blocked polyisocyanate cross linker, thick heavy duty coatings as underbody car protection, automotive primer surfacer/topcoat. Stone chip resistance, chemical resistance and adhesion.	X		X	X	
N 3800	100	4.800 – 7.200	11.0	Aliphatic polyisocyanate (flexibilizing HDI trimer). For coating systems based on N 3800 are air and heat-drying automotive OEM, automotive refinishing and transportation coatings, as well as industrial coatings and coatings for plastics.	X	X	X		X
HD 3100	100	2.000 – 3.600	17.4	Aliphatic polyisocyanate, based on HDI for aqua PU-coating.	X	X	X		X

HIGH PERFORMANCE COATINGS APPLICATIONS



VARENA is at the forefront of blocked isocyanate technology and our products designed as solvent-borne and 100% solids meet the requirements of high performance coatings formulations in a wide range of application areas.

SPECIAL PRODUCTS

Performance Materials

VaraTon; STYRENE-BUTADIEN COPOLYMER

Product	Supply Form [%]	Viscosity [dPa.s]/23°C	Molecular weight	Main uses and characteristics
MA-100	>99.8	600 – 900	8200	Low odour binding agent in aqueous adhesion promoter in automotive sealants, soft, isocyanate free electrical encapsulants, rubber to metal bonding and formulation of slow release fragrance gels.
MA-150	>95.0	15.00 – 6000	1.000	Low odour binding agent in aqueous adhesion promoter in automotive sealants and semi structural adhesives, rubber to metal adhesion promoter and electrical encapsulants.
MA-500	70 - 78	1200 – 2200	5750	Soft, isocyanate free electrical encapsulants, adhesion promoter in automotive sealants, rubber to metal adhesion promoter and impact modifier for polyester resins.



VaraTon; STYRENE-BUTADIENE-COPOLYMER

VaraTon SB-300

An anionic, aqueous dispersion of a carboxyl group containing styrene-butadiene-copolymer.

VaraTon SB-300 is mainly used as binding agent in aqueous anticorrosive automotive coatings where stone-chipping resistance is required, often in combination with water soluble or water dilutable resins.

The dispersion dries at room temperature to a tough elastic film with good adhesion to metallic surfaces and excellent abrasion resistance at high mechanical stress. By briefly heating up to 150°C these properties can be improved further. The VaraTon SB-300 dispersion also offers a high chemical and mechanical resistance also as good compatibility with fillers, pigments, water soluble and water dilutable resins. Anyway individual trials to check its suitability in the large variety of applications is recommended.

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	pH-value	Main uses and characteristics
SB-300	49-51	50 – 400	8 – 8,6	As binding agent in aqueous anticorrosive automotive coatings where stone-chipping resistance is required,



**VARA**tect

INNOVATING NANO TECHNOLOGIES

VaraTect; NANO-INORGANIC-ORGANIC HYBRID SYSTEMS

Product	Appearance	Supply Form[%]	Application	Viscosity [mPa.s]/20°C	Main uses and characteristics
VaraTect 1107	Clear, slightly yellowing liquid	42 in ethanol	Spraying, dipping, flooding, wiping	max. 100	Thin layer clear coat with excellent corrosion-protection effect, metals, old paint layers (grind by using an abrasive pad), drying at room temperature, forced or by stoving.
VaraTect 1119	Clear, slightly yellowing liquid	42 in n-propanol	Spraying, dipping, flooding, wiping	max. 30	Thin layer clear coat with excellent corrosion-protection effect on glass, metals, old paint layers (grind by using an abrasive pad), drying at room temperature, forced or by stoving.
VaraTect 1181	Clear liquid	30 in solvenon DPM/MPA	Spraying, dipping, flooding, wiping	max. 30	Two component thin layer clear coat with VaraTect 1119 / 1107, used with catalysts as a sole binder, high abrasion- and scratch resistance, good chemical resistance, excellent mar resistance and anti-graffiti-/easy-to-clean-effect.
VaraTect 1126	Clear, slightly yellowing liquid	42 in ethanol	Spraying, dipping, flooding, wiping	max. 100	Thin layer clear coat with excellent anti-graffiti-/easy-to-clean-effect on glass, metals, old paint layers (grind by using an abrasive pad), drying at room temperature, forced or by stoving, excellent scratch resistant.

NANO PROTECTIVE SYSTEMS





VaraMul

ACRYLIC DISPERSION FOR PAINT AND COATING



VaraMul AE 1135

Styrene Acrylic Copolymer Emulsion



VARAMul

ADVANCED WATERBORNE ACRYLIC DISPERSIONS

Water dilutable Reflective Paint for Automotive accessories
(reflectors) acrylic resins

Reflective Paint

Corners can use it, homes can use it and even wheels and wagons can benefit. If you do it, you will fall for its useful properties too. Reflective paint has a host of uses in and around the home on sports equipment, off-road vehicles and more. Making your own reflective paint is not a difficult endeavor for the typical DIYer.

Reflectors Acrylic Emulsion Coatings

Excellent adhesion on various substrates. Very good compatibility with water soluble alkyd resin.

VaraMul AE 1135 has widely spread application facilities for top coats on plastics, metal and wood. This product can also be used as binding agent for the production of temporary plastic primers. Last **VaraMul AE 1135** is suitable as combining agent for water soluble alkyd resins in hybrid coats.

Technical Data:

	Value	Unit	Test Method
Non-volatile content, 1h/125 °C,	42 ± 1	%	DIN EN ISO 3251
Viscosity, Brookfield, 20 °C	max. 1.000	mPa.s	DIN EN ISO 2555
pH-value	7.5 – 8.5	-	DIN ISO 976
Density, 20 °C	approx. 1.04	g/cm ³	DIN EN ISO 2811-1
Emulsion system	anionic	-	-
MFFT, minimum film forming temperature	39	°C	ISO 2115
Freeze-thaw stability	5 cycles	-	ISO 1147
Delivery form	42% in water	%	-

Component A :

1	VaraMul AE 1135, 42% W	50,0	www.varena-chem.com
2	Acrysol RM 8, 30% in Water demin.	0,6	www.rohmhaas.com
3	Water demin.	13,9	
4	Water demin.	10,5	
5	Methoxy propanol	5,0	
One after the other while stirring			

Component B :

6	Stapa Hydrolac WH Chromal X	10,0	www.eckart.net
7	Water demin.	10,0	
Disperse homogeneously			
		100,0	

Add component B to A while stirring.

Sprayviscosity:	22 sec. DIN-cup 4 mm
Dilluent:	water demin.
Drying:	air drying



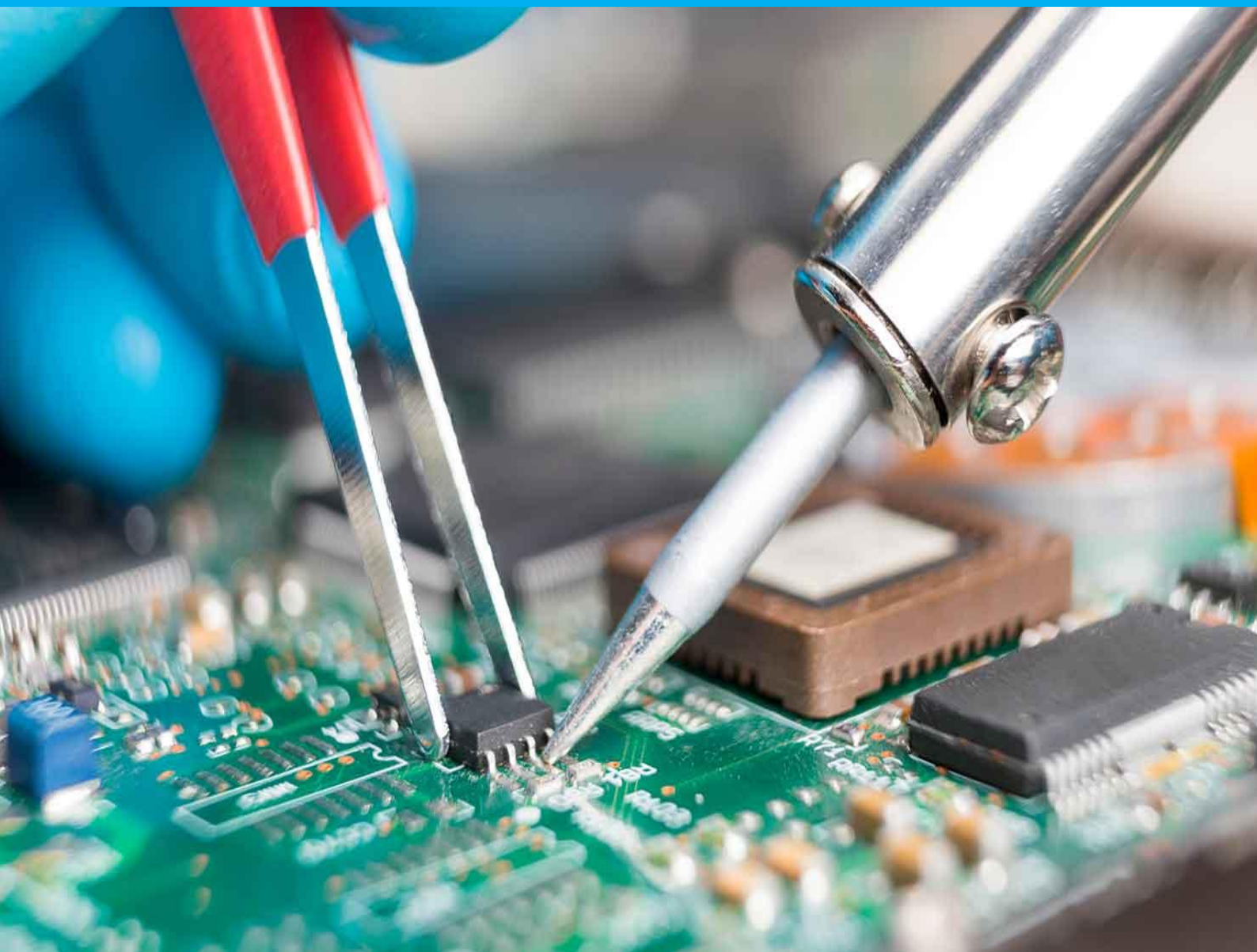
VARATRON

ELECTRONIC PROTECTION SOLUTIONS

ELECTRONIC PROTECTION SYSTEM

VaraTron ACRYLIC THIN FILM COATING

Thin Film Coating; transparent, self-extinguishing according to UL 94 V0



superior protection
humid environment

TECHNOLOGIES FOR A SECURE FUTURE



VaraTron; HIGH MOLECULAR ACRYLIC FOR ELECTRONIC PROTECTION SYSTEMS

Product	Characteristics	Nonvolatile Content [%]	Viscosity [mPa.s]	Application
VaraTron EPS 1102	High molecular, acrylic modified polymer	20.5	50 ± 10/ 23°C	Acrylic, thin film build, electronic protection coating, air drying, ready to use in spray or dip application, UV tracer, excellent air release & substrate wetting. Non-fogging per DIN 75201
VaraTron EPS 1104	Acrylic modified polymer	20.5	50 ± 10/ 23°C	Electronic protection coating. VaraTron PL 1104 passes tests according to IPC CC-830-B, MIL I 46058 C and IEC 61086.

VaraTron EPS 1104 is a transparent conformal coating based on acrylic chemistry. The development of VaraTron EPS 1104 meets the latest requirements of electronics, low pin corrosion, excellent edge coverage and fast curing at low temperature. The varnish provides superior performance in dielectric properties and moisture protection under environmental stress. VaraTron EPS 1104 is lead free and satisfies requirements of the ROHS Directive. VaraTron EPS 1104 passes tests according to IPC CC-830-B, MIL I 46058 C and IEC 61086.



VARATRON

ELECTRONIC PROTECTION SOLUTIONS

Application:

Coating of electronics:

- PCB's used in automotive and marine navigation
- Hybrids
- SMD devices
- discrete components

Main Properties of VaraTron EPS 1104:

Rapid curing at RT & heat accelerated

High volume resistivity including humid conditions

Good dielectric properties in thin films

Resistant to moisture and dust contamination

Withstands weak acids & alkalis

Good adhesion under thermal cycling

Temperature resistance 130°C

Easy rework for repair

Inspection of coated area is possible under UV light

Self-Extinguishing according to UL 94 V0

Processing:

The coating varnish [VaraTron EPS 1104](#) was developed for automatic selective coating equipment. It can be applied by dipping, spraying (atomisation with air or cross cut nozzle) or brushing. The recommended viscosity for selective coating correlates to 40 seconds in 4-mm-cup (DIN/EN/ISO 2431) at ambient temperatures. [VaraTron EPS 1104](#) could be used at temperatures above room temperature in circulating Systems. For dipping, thinner Vactron 217 can be added to obtain the recommended viscosity. A single coating ensures good dielectric insulation and complete protection against humidity. The surface of the dip tank should be as small as possible. If the tank is not in use it should be kept closed to prevent evaporation of solvents of the varnish surface. In order to achieve satisfactory wetting and fault-free adhesion of the coating varnish it is important to ensure compatibility with the solder resist, paste and flux.

Curing:

Air curing 23°C Cured 90 minutes

dust dry 25 minutes

Oven curing up to 80°C within approx. 15 minutes

Time depends on oven air flow & ventilation

VaraTron for Automotive

for highest electronic performance

Thin Film Coating:

- lead free, no aromatics
- fast curing
- good temperature cycling
- UL-listing 94 V0

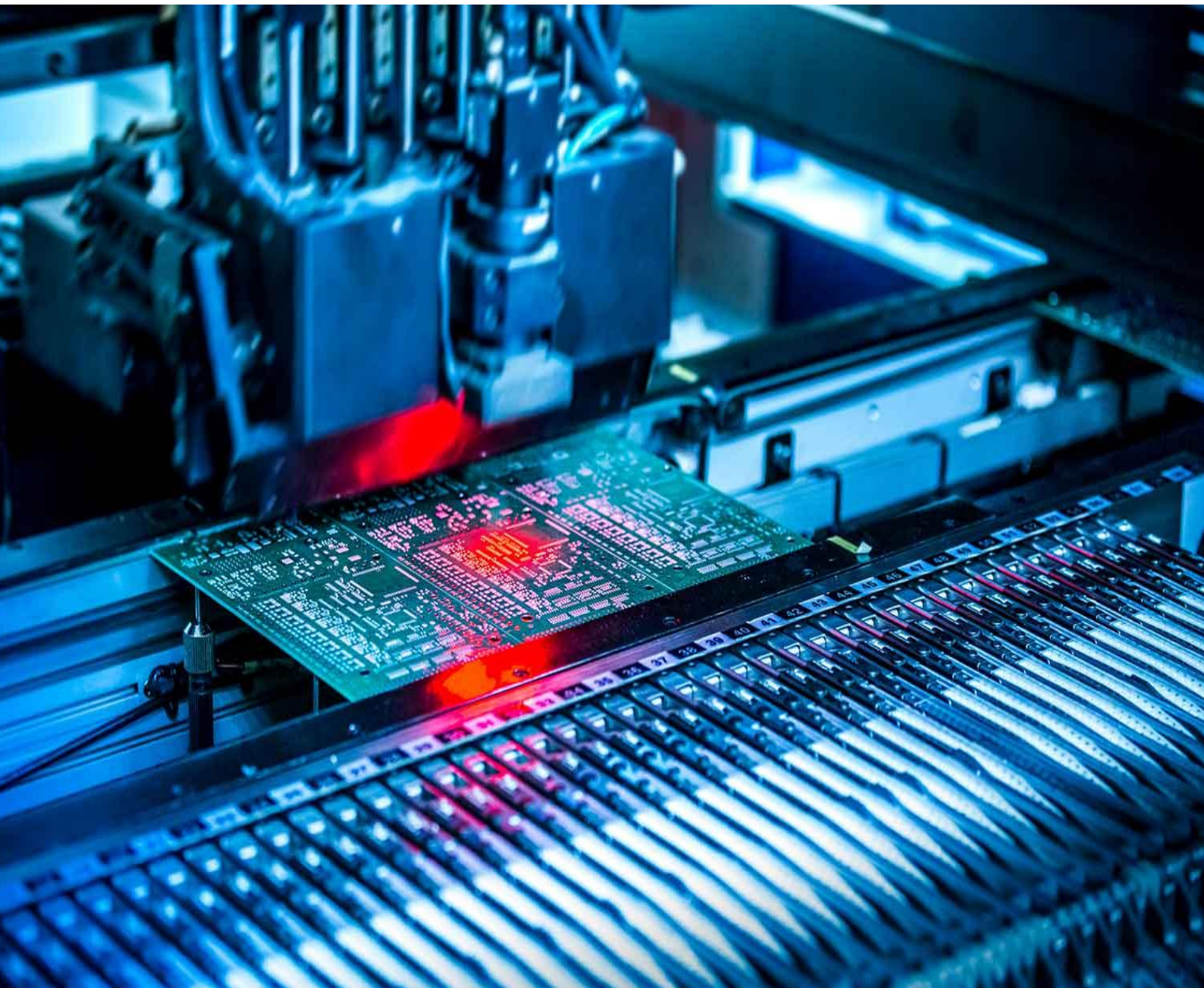


Table 1: Typical properties of coating varnish

PROPERTY	CONDITION	VALUE	UNITS
Non volatile content, ISO 3251 (Solid Content)	1,5 g, 1 h, 110 °C	20,5 ± 1	%
Viscosity – Flow Time, DIN EN ISO 2431 cup	4 mm-Cup, 23 °C	40 ± 15 (=50)	Seconds (mPa.s)
Density, DIN 51757	23 °C	0.90 ± 0.01	g/cm ³
Minimum shelf life	23 °C	12	months
Curing Time	23 °C, dust dry	0,42	h
	23 °C, touch dry	1,00	h
	23 °C, cured	2,00	h
	80 °C, cured	0,25	h

Table 2 - Mechanical properties of cured coating

PROPERTY	CONDITION	VALUE	UNITS
Mandrel Bend Test, IEC 60464-2/IPC TM650 2.4.5.1	3 mm, 0,06 mm film	> 180	°
Cross Hatch Test, DIN 53151/IPC TM650 2.4.1.6	-	GT 0	-
Thermal Shock, 50 cycles MIL-I-46058C	-65 to 125 °C	pass	-

Table 3 – Dielectric properties of cured coating

PROPERTY	CONDITION	VALUE	UNITS
Permittivity, IEC 60250	23 °C 10 KHZ	2.7	
Dielectric Dissipation Factor	23 °C 10 KHZ	0.013	
Dielectric Strength, IEC 60464 part 2/IPC TM 650 2.5.6.1B – after 23 hours water immersion.	23 °C	>156 >120	
Volume Resistivity, IEC 60464 part 2/IPC TM 650 2.5.17 – after 23 hours water immersion.	23 °C	1 x 10 ¹⁶ 1 x 10 ¹⁶	Ω . cm Ω . cm
Tracking Resistance, IEC 60112		600	CTI

Table 4 - Chemical properties of cured coating

PROPERTY	CONDITION	VALUE	UNITS
Water Absorption, ISO 62	23°, 24 hours	4.5	mg
Self-Extinguishing according to UL 94	On 1,5 mm FR4	V 0	-



VARAPEEL

strippable coating acrylic dispersions

VaraPeel 2820

Water-based strippable coating acrylic dispersion

A fast drying water-based acrylic for removable coating for protection in harsh, outdoor, unsheltered applications.

Provides multimetal protection. Excellent UV resistance.



Applications

- Automotive
- Mining machinery
- Marine
- Aviation
- Filming & studio use
- Construction industry
- Fibre glass industry
- Metal works and fabrication
- Brass, copper & aluminium protection
- Spray booths
- Signage and advertising
- Protection of pre-painted surfaces
- Stop-off coating in electroplating
- Glass and glazing industry
- Casting moulds

SELECTIVE RESINS FOR SPECIAL APPLICATIONS



Highly elastic soft-touch coatings



VARENA CHEMICAL develops and markets innovative and sustainable coating technologies for highly flexible substrates. Uses include shoes, toys, vehicle interiors and furniture. These technologies set new standards in design opportunities, customization and process optimization, which helps our customers creating innovative and unique products that contribute to more sustainability.



VaraCor WA 7402

a soft dispersion that works great as a binder for leather coatings and shoe polish has proven. Leather and shoe coatings based on WA 7402 have a very good water resistance, but are still permeable to water vapor.

VaraCor WA 7516

has proven itself as a mixed polymer in leather preparation. The addition of WA 7516 reduces in polishable and non-polishable systems the surface smoothness.

VaraCor; SPECIAL ACRYLIC EMULSION DISPERSION

Product	Monomer	Supply Form [%]	pH value	Tg [°C]	Viscosity [mPa.s]/20°C	Main uses and characteristics
WA 7402	Acrylic copolymer dispersion	38 in water	7.2-7.8	-	max. 200	WA 7402 is a soft dispersion that works great as a binder for leather coatings and shoe polish has proven. Leather and shoe coatings based on WA 7402 have a very good water resistance, but are still permeable to water vapor.
WA 7516	Acrylic copolymer dispersion	45 in water	6.5-9.5	-	max. 300	WA 7516 has proven itself as a mixed polymer in leather preparation. The addition of WA 7516 reduces in polishable and non-polishable systems the surface smoothness.
WA 7711	PUR cationic acrylic dispersion	26 in water	approx. 5	-	300 – 800	Good compatibility with cationic systems.
WA 7530	Hard methacrylate copolymer dispersion	40 in water	5.0-6.0	-	max. 200	WA 7530 is ideal as a polymer component for the formulation of car carpet and seats shampoos.

WATER-BASED & SOLVENT-BASED COATING ADDITIVES



HIGH PERFORMANCE COATINGS ADDITIVES



AUTOMOTIVE COATINGS

A small percentage with a BIG impact!

Additives for Automotive Coatings

We create chemistry that helps to improve performance, appearance, durability & efficiency of automotive coatings!

A little makes a big splash!



VARENA CHEMICAL offers additive solutions for aqueous and solvent-borne automotive OEM coatings, such as cathodic electro deposition, primers, monolayer topcoats, basecoats and clearcoat systems.

Our various additive families offer solutions for improving surface properties such as gloss and leveling, support brilliance and color intensity, PVC adhesion promoter and help orientation of effect pigments to optimize the flop effect.

VARENA also offers suitable solutions to prevent foam and the associated defects.



Coatings additives improve product properties and eliminate or reduce problems occurring during formulating paint systems, thus optimizing production processes. Coatings additives – high performance additives for your paint formulations. Coatings additives help you meet the challenges typically appearing in paint formulations and offer customized solutions with regard to improved pigment wetting, defoaming, air release, substrate wetting or surface slip. Using additives you will also meet the requirements for water and scratch resistance, increased adhesion to aged coating surfaces or UV protection, to name but a few.

THORDISPERS; WETTING AND DISPERSING AGENTS

Product	Chemical characteristic	Active substance [%]	Main uses and characteristics
DIS 810S	Modified block copolymer	100	Easy-to-use, universal dispersion for decorative and industrial coatings, recommended for solvent-borne and solvent-free systems.
DIS 811S	Modified polymer	100	Easy-to-use, universal dispersion for decorative and industrial aqueous coatings; first choice for medium oil alkyds when gloss matters.
DIS 840W	Modified block copolymer	50	Universal, outstanding cost-performance ratio for aqueous systems.
DIS 844W	Modified block copolymer	40	40% version of DIS 840W for aqueous systems.
DIS 845W	Modified block copolymer	50	Similar to DIS 840W, optimized for micronized iron oxides.
DIS 846W	Modified polyacrylate	50	For highly loaded concentrates of various pigments, especially effective with carbon blacks for aqueous systems.
DIS 850W	Modified polyacrylate	50	Universal, no effect on film hardness; for maximum pigment paste concentration take DIS 840W or DIS 870W.
DIS 860W	Modified polyacrylate amine-free	44	Universal. No effect on film hardness; lowest water uptake; for maximum pigment paste concentration take DIS 840W or DIS 870W.
DIS 870W	Modified alcohol ethoxylate	80	Very effective, low use level, outstanding for printing inks.
DIS 438	Special polymer	100	Special additive for solvent based alkyd systems, it enhances the dispersing of pigments and increases the gloss.

THORFOAM AQUA; ANTI-FOAMING AGENTS FOR AQUEOUS SYSTEMS

Product	Chemical characteristic	Active substance [%]	Use level (on total formulation)
AQUA 210	Silica containing PDMS solution	80	0.1 – 1.7
AQUA 223	Silica containing PDMS	100	0.1 – 1.0
AQUA 224	Silica containing PDMS	100	0.1 – 1.0
AQUA 226	Silica containing PDMS	100	0.1 – 1.0
AQUA 204	Silicone containing solution	25	1.0 – 4.0
AQUA 228	Silica containing PDMS solution	66	0.1 – 1.0
AQUA 241	Silica containing PDMS solution	30	0.3 – 1.0
AQUA 242	Silica containing PDMS solution	26	0.1 – 1.0
AQUA 250	Silicone- and mineral-oil free	100	0.3 – 1.0
AQUA 251	Silicone- and mineral-oil free	100	0.3 – 1.0
AQUA 229	Silicone based defoamer	100	0.1 – 1.0

THORFOAM; ANTI-FOAMING AGENTS FOR N-AQUEOUS

Product	Chemical characteristic	Active substance [%]	Use level (on total formulation)
PD 170	PDMS solution	10	0.03 – 0.5
PD 172	PDMS solution	5	0.05 – 0.8
PD 125	Silicone-free formulation of defoaming actives	80	0.2 – 1.5
PD 102	PDMS solution	1.3	0.4 – 2.0
AC 103	Solution of acrylate-mod. PDMS	13.5	0.2 – 1.5
AC 135	Solution of polyacrylate-mod. PDMS	8.5	0.5 – 1.0
PD 123	PDMS solution	12	0.5 – 1.0



Wetting and dispersing agents

The additives stabilize pigments (inorganic, organic and also effect pigments) and fillers.

THORNOL; SUBSTRATE WETTING AGENTS

Product	Chemical characteristic	Active substance [%]	Use level [%] (on total formulation)	Highlighted application / Effect
WET 345	Formulation of silicone copolyether and dioctylsulphosuccinate	71	0.3 – 1.5	Improves the substrate wetting and penetration of aqueous formulation.
WET 341	Polyethermod. PDMS trisiloxane	50	0.2 – 1.5	For all kinds of aqueous air-drying industrial, automotive, wood and architectural coatings and 2-pack PUR; no influence on surface slip, no foam stabilization.
WET 344	PDMS copolymer	100	0.1 – 1.0	For all kinds of aqueous air-drying industrial, automotive, wood and architectural coatings and 2-pack PUR systems; no influence on surface slip, no foam stabilization; better against craters than THORNOL 341.
WET 328	Maleic resin	100	0.2 – 1.5	A wetting agent for wood impregnation and solvent as well water-dilutable premix applications.
WET 354	Maleic resin	100	0.2 – 2.0	A wetting agent for wood impregnation and solvent as well water-dilutable premix applications.
WET 346	Dioctylsulphosuccinate / PDMS	70	0.3 – 1.5	For water borne coatings, by reducing the surface tension causes Add 3460 better substrate wetting on substrates with low surface energy. The penetration in porous substrates such as wood or paper is improved. Surface defects as craters, orange peel and edge pulling are significantly reduced.
WET 301	Dioctylsulphosuccinate	70	0.1 – 1.0	Additive for improving the wetting and leveling of water borne coatings on different substrates. Typical applications are coatings on wood, printing inks, care products, adhesives, etc.

THORLEX; ADHESION PROMOTER

Product	Chemical characteristic	Active substance [%]	Use level [%] (on total formulation)	Highlighted application / Effect
EP 580	Specially mod. epoxy ester	70	1.0 – 5.0	Aqueous baking enamels and polyurethane systems.
EP 584	Specially mod. epoxy ester	77	1.0 – 3.0	Solvent-borne baking enamels and PU-systems.
SP 586	Special polyester	75	1.0 – 3.0	Solvent-borne air-drying and stoving polyurethane systems: stable up to 180°C.
SP 587	Special polyester	75 – 80	1.0 – 3.0	Solvent-borne air-drying and stoving polyurethane systems; stable up to 180°C; NMP-free.
PU 548	Isocyanate functional polymer	80	2.5 – 5.0	Solvent-borne and solvent-free polyurethane systems.
SP 590	Special modified polyester	100	1.0 – 3.0	Improves adhesion of solvent borne stoving- and polyurethane system, PURSILAN-systems on metals and melamine resin coated chipboards.
EP 790	Specially mod. epoxy ester	73	5.0 – 15.0	Used as additive for waterborne stoving enamels; humidity- and corrosion resistance, adhesion, chemical resistance, stain resistance, pasteurisation resistance.
SP 711	Solution of a modified polyester	70	3.0-15.0	Improves adhesion and flexibility of solvent-borne coatings on steel, galvanized steel, aluminium and plastics.
SP 901	Special modified OH.group containing polyester	90	1.0 – 3.0	Adhesion promoter for coating formulation, solvent based air drying, stoving and 2 component systems. Improves the adhesion of polyurethane systems on metals.



Adhesion promoters and coupling agents

Adhesion promoter additives improve the bond between a coating and a substrate, particularly metal substrates.

THORFLEX; ACRYLIC FLOW AND LEVELING AGENTS

Product	Chemical characteristic	Active substance [%]	Use level [%] (on total formulation)	Highlighted application / Effect
FL 20	Polyacrylate	100	0.2 – 2.0	Especially for coil and can coatings; 2K-PUR and high solids; weatherproof, UV-resistant. FL 20 corresponds to FDA § 21 CFR § 175.300 and the AP (2004).
FL 20-50	Diluted polyacrylate	50	0.4 – 4.0	Easy to dose; especially for coil and can coatings; 2K-PUR and high solids: weatherproof, UV-resistant.
FL 90	Polyacrylate	100	0.5 – 1.5	Especially for coil coatings; 2K-PUR and high solids; weatherproof, UV- and hydrolysis-resistant.
FL 100	Polyacrylate	100	0.2 – 2.0	Especially for 1K/2K high solids; excellent weather, UV and hydrolysis stability. LW prevents surface defects and improves the flexibility of coating films.
FL 200	Modified polyacrylate, carboxyl functional	96	0.2 – 1.5	Excellent compatibility with various resins; specially for aqueous coatings, but also for solvent-based systems, no transparency of clear coats. FL 200 corresponds to FDA § 21 CFR § 175.300 and the council of Europe resolution AP (96) 5.
FL 167	Silicon-free polymer	min. 98	0.2 – 2.0	Hydrolysis and UV-resistant polymeric leveling agent to prevent surface defects like crating, pinholes, orange peels, etc.. industrial adhesion and recoatability are not affected by addition of FL 167.
FL 190	Acrylic polymer	100	0.2 – 1.5	Used in high solids, UV curing, coil, and other coating systems for improving flow and leveling (orange peel).
FL 151	Acrylic polymer	50	0.2 – 2.0	For water- and solvent-based systems, imperfections such as craters, pinholes, fisheye, orange peel and swim-out.
FL 40-50	Silicon-free polyme	50	0.4 – 4.0	As FL 20, but with improved efficiency.
FL 40	Acrylic polymer	98	0.2 – 2.0	Used in solvent based coatings, high solids, coil coating and powder systems, it will correct surface imperfections, improve flexibility and increase adhesion.
FL 292	Acrylic polymer	67	0.1 – 1.0	Silicone free levelling agent with air release properties for different reactive resin systems, printing inks, eliminates or reduces peel; it improves the flow, dispersion and floating behaviour, prevents air entrapment.
FL 247	Flourine modified acrylic polymer	70	0.3 – 2.0	Fluorine modified polymeric flow control agent for solvent based systems. For high-speed applications like coil coatings; improves substrate wetting, leveling and deairing, avoids / reduces surface imperfections.
FL 337-70	Flourine modified acrylic polymer	70	0.3 – 2.0	Fluorine modified polymeric flow control agent for solvent based systems, like polyester, acrylic, epoxy, alkyd and urethane resins. It reduces surface imperfections such as craters, pinholes, fisheye, orange peel and swim-out.
FL 101	Colourless, high viscouse liquid	approx. 98	0.1 – 1.0	Silicon-free acrylic flow control agent for solvent-based and free coatings, printing inks, FDA § 21 CFR § 175.300

TIXTHOR; THICKENERS AND RHEOLOGY-CONTROL AGENTS

Product	Chemical characteristic	Active substance [%]	Use level [%] (on total formulation)	Highlighted application / Effect
RC 53 L	White liquid (emulsion)	approx. 30	1,0 – 5,0	Highly effective rheology-control thickeners for a wide range of water-based coatings, anti-settling & anti-sagging agent.
RC 54 L	White liquid (emulsion)	approx. 30	1,0 – 5,0	Highly effective rheology-control thickeners for water-based systems, especial automotive OEM.

THORSIL; SILICONE SURFACE ADDITIVES

Product	Chemical characteristic	Active substance [%]	Use level [%] (on total formulation)	Highlighted application / Effect
SIL 511	Polyethermod. PDMS	10 / 30	0.1 – 1.0	For solvent-borne air- and UV-drying systems; multifunctional additive to improve leveling and scratch resistance; presents pigment floating.
SIL 512	Polyethermod. PDMS	10	0.1 – 1.0	Especially for aroma-free decorative and DIY coatings.
SIL 515	Polyethermod. PDMS	10	0.1 – 1.0	Silicone paint additive to improve surface slip, mar resistance, substrate wetting, flow and leveling and gloss; particularly for clear-coat formulations.
SIL 527	Polyethermod. PDMS	20	0.1 – 1.5	For solvent-based, air-drying coatings; provides high mar resistance by increasing the surface slip
SIL 528	Polyethermod. PDMS	100	0.2 – 1.0	For 2 K PUR and UV curing varnishes and printing inks; highly effective at low concentrations.
SIL 530	Mod. PDMS	10	0.3 – 0.5	For water-thinnable systems; improves the overspray absorption in wet-in-wet applications; reduces/avoids edge pulling.
SIL 540	Special modified silicone polyether	100	0.1-1.0	Greatly improves the wetting of water borne coatings and inks on difficult substrates.
SIL 551	Turbid, creamy silicon modified liquid	70	0.1-1.0	High molecular silicon additive for outstanding slip, mar resistance and antiblockings.
SIL 552	Turbid, creamy silicon modified liquid	70	0.1-1.0	High molecular silicon additive for outstanding slip, mar resistance and anti-blockings.
SIL 573	Org. mod. PDMS	3	0.2 – 1.0	For alkyd-based decorative paints and DIY lacquers for brush and roll application; multi-functional.
SIL 556	Solution of a polyester-modified polydimethylsiloxane.	30	0.2 – 1.0	For solvent-based paints and coatings incl. curtain coatings; stable to 200°C. It is recommended for decorative paints, stoving enamels metallic car paints.
SIL 529	Org. mod. PDMS	10	0.2 – 1.0	For solvent-borne matted systems; supports the rising and orientation of silica-based matting agents and improves matting.
SIL 555	High molecular PDMS	78	0.3 – 1.0	For 2 K PUR systems; improves scratch resistance of water-thinnable lacquers and printing inks as well as satin gloss to glossy systems; significantly reduces blocking.
SIL 553	High molecular PDMS	70	0.1 – 1.0	For water-thinnable and alcohol-based paint, printing inks and overprint varnishes
SIL 580	Org. mod. PDMS	30	0.2 – 1.0	For solvent-based paints and coatings incl. curtain coatings; stable to 200°C.
SIL 545	Hydroxylborne-polyethermod. PDMS	100	0.01 – 0.5	For solvent- and water-based paints and lacquers, printing inks, overprint varnishes and UV-hardening systems; improves leveling and scratch resistance; prevents pigment floating and surface defects.
SIL 585	Polyethermod. PDMS	100	0.01 – 0.5	For solvent- and water-based paints and lacquers, printing inks, overprint varnishes and UV-hardening systems; improves leveling and scratch resistance; prevents pigment floating and surface defects.
SIL 510	High molecular PDMS in xylene	15	0.1 – 0.5	Hammerstone additive for preparation of effect lacquers for solvent borne coatings.
SIL 560	Diocylsulfosuccinate / PDMS	70	0.3 – 1.5	For water borne coatings, by reducing the surface tension causes. The penetration in porous substrates such as wood or paper is improved. Surface defects as craters, orange peel and edge pulling are significantly reduced.

Silicone surface

Silicone surface additive for solvent-borne, solvent-free and aqueous coating systems with a strong reduction in the surface tension. Excellent substrate wetting, prevents cratering and increases surface slip.

THORTEC; PVC ADHESION PROMOTER

Product	Supply Form [%]	Viscosity [mPa.s/23°C]	AMV [mg KOH/g]	Main uses and characteristics	1K
TEC 600	100%	7000-10000 at 25°C	270 – 310	DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X
TEC 601	100%	1500-2500 at 25°C	360 – 390	TEC 601 is an DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X
TEC 605	100%	1000-1500 at 75°C	370 – 400	An DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X
TEC 608	100%	1000-2000 at 75°C	380 – 410	TEC 608 is an DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X
TEC 610	100%	400-800 at 75°C	270 – 300	An DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X
TEC 614	100%	300-800 at 75°C	220 – 260	TEC 614 is an DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X
TEC 640	100%	5000-6000 at 25°C	440 – 550	TEC 640 is an DOP free adhesion promoter for PVC plastisols mainly used in the automotive industry as underbody coating and bodysealer.	X

THORBOND; SPECIAL PRIMERS / ADHESION PROMOTER

Product	Properties	Non-volatiles [%]	Flash point [°C]	Solvent	Appearance / Use
PM 810	Adhesion promoter for flexible substrates; for immediate or subsequent painting, printing, gluing and labeling	4	25	xylene	White pigmented solution; ready for use.
PM 830	Adhesion promoter for flexible substrates; for immediate or subsequent painting, printing, gluing and labeling	4	25	xylene	White pigmented solution; ready for use.
PM 840	Adhesion promoter for undercoat polyethylene for subsequent coating or printing	5	25	xylene	Yellowing to brown, low viscosity liquid; dilute down to 2.5% solids.
PM 820 W	Aqueous adhesion promoter based on specially modified, low-chlorinated polypropylene	30	n.a.	water	Low-viscosity, brownish and turbid liquid; dilute down to 10% solids or incorporate in adhesives, ins and paints.
PM 825	Adhesion promoter especially for polypropylene; use on other substrates may be possible (testing)	2.5 or 5	25	xylene	Yellowing, low-viscosity liquid; ready to use (2.5%); dilute down to 2.5%.
PM 870	Adhesion promoter for undercoat polypropylene for subsequent painting, printing, best adhesion properties	2.5	25	xylene	Colourless to yellowish, clear liquid, ready to use.
PM R-800	Transparent adhesion promoter for use on uncoated plastics. Composition based on chlorinated polyolefine. Gives excellent adhesion on exterior plastic car parts. Uncoated exterior plastic types e.g. AAS, ABS, PBTP, PC, PP/EPDM, PVC, SMC, GFK,	16	25	xylene	Yellowing, low-viscosity liquid; ready to use .

Primer for plastics and coupling agents

In numerous coating and plastics applications, the condition of interfaces is a significant influencing variable for the efficiency in the final applications.



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